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Proceedings  
of  
The Anatomical and Anthropological Society

# University of Aberdeen.

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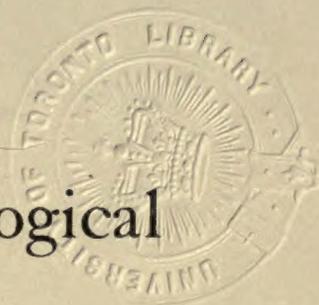
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" No. 54.—*Flora of Banffshire.* W. G. Craib, M.A.  
" No. 55.—*Catalogue of Anthropological Museum.* Professor R. W. Reid, M.D.  
" No. 56.—*Physical Geology of Dee Valley.* Alexander Bremner, M.A., B.Sc.  
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" No. 58.—*Notes on Academic Theses.* P. J. Anderson.  
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Proceedings  
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Hon. President

Robert William Reid, M.D., F.R.C.S.

Professor of Anatomy

1908-14

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## ORDINARY MEETING.

22ND OCTOBER, 1908.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of the last meeting were read and approved.

Mr. Hatashil Masha Kathish, a Dinka native, gave a lecture on "The Habits and Customs of the Dinka Tribe." The lecture was unique in many ways, and interesting because the lecturer gave a criticism of the people from the native's point of view.

Mr. Kathish replied to a number of questions that were asked him.

On the motion of the President, Mr. Calder, M.A., a very hearty vote of thanks was accorded Mr. Kathish, and the meeting closed with a vote of thanks to Professor Reid for taking the chair.

## SYNOPSIS OF LECTURE BY MR. KATHISH.

The Dinka tribe had originally been called Junga, after a kind of white wheat which grew there in abundance, which was prized very much, and which indicated their eminence as a pastoral people, possessed of many cows, goats, and sheep. The home of the tribe is on the eastern side of Bhar-el-Gazel, a tributary of the Nile, south of Khartoum.

After giving a graphic description of the characteristic features of the country, the lecturer went on to deal with the social customs of the people. A tortoise feast was often held, and for this purpose anything from 10 to 200 tortoises were killed. The natives all sat down in company in the open and fed on the roasted tortoises. The animals were roasted on their backs, and the shells used for holding the gravy. The flesh was pulled to pieces by the fingers.

The marriage custom was a mercenary kind of affair, as the bride was bought for so many cows. The dowry paid was from 70 to 100 cows, and a man could have as many wives as he was able to purchase.

Deer were very plentiful at certain seasons, and the Dinkas had great enjoyment in hunting the young fawns. The great feature of the country, however, was the herds of cows kept for milk and butter, the women of the tribe priding themselves on the butter and other products they made from the milk. Living within fifty miles of the equator, the tribe used a great deal of melted butter to keep themselves from getting chilblains.

Dealing next with the worship of the Dinkas, the lecturer stated that they were not idolatrous in the commonly accepted sense. Though they had no systematic religion, as in this country, they worshipped Nature and believed in a creator, and their simple religion was very much like that of the ancient Egyptians. They also believed in their ancestors living afterwards, and believed in the air as a life-giving god. They offered animal sacrifice to the souls of their ancestors, but human sacrifice was unknown amongst them.

In reply to one question, Mr. Kathish stated that the people used no mineral salt, but used instead a vegetable salt, obtained from the burning of certain leaves.

ORDINARY MEETING.

12TH DECEMBER, 1908.

Mr. N. J. CALDER, M.A., President, in the Chair.

The minutes of last meeting were read and approved.

Dr. James Watt read a paper on "The Anatomy of Lumbar Puncture," and in it emphasised the importance of every student gaining an accurate knowledge of the subject on account of the frequency of the operation.

Papers describing anatomical variations were then read by the following gentlemen:—Messrs. Baxter; W. G. Thomson; H. R. Souper; R. A. Presslie; I. G. Bisset; G. Argo; J. Jaffé; and R. R. M. Porter.

On the motion of the chairman, a hearty vote of thanks was accorded to Dr. Watt for his interesting paper.

## SOME POINTS IN THE ANATOMY OF LUMBAR PUNCTURE.

The operation of puncture of the lumbar subarachnoid space with withdrawal of more or less of the cerebro-spinal fluid for curative and diagnostic purposes was suggested by Quincke in 1891, and has within the last ten years assumed greater importance by reason of its relation to Spinal Analgesia or Anaesthesia, as introduced by Corning and Bier. Though this paper deals primarily with lumbar puncture, its bearing on Spinal analgesia is kept in mind throughout, since the anatomical considerations are practically the same. It is generally admitted that the percentage of failures in this apparently simple operation diminishes markedly with improvement in the technique and in the acquaintance of the operator with the anatomy of the parts. Let me first shortly recall a few anatomical facts before giving the results of investigations made on the subjects in the dissecting-room and on a few skeletons.

The spinal cord and its membranes are carefully protected posteriorly by the bony laminae of the vertebræ, which overlap each other like slates on a roof except in the upper cervical and lumbar regions where intervals are left through which an instrument can penetrate to the cord. The cord itself ends pretty constantly at the lower border of the 1st lumbar vertebra in the adult, so that puncture of the subarachnoid sac in the interval between the 1st and 2nd lumbar vertebræ entails little risk and in the lower spaces no risk of injury to the cord itself. In the infant at birth, the cord may extend as low as the 3rd lumbar vertebræ. The nerve roots forming the cauda equina, lying in their water-bath of cerebro-spinal fluid, make way to a certain extent for the entering cannula. In dissecting-room subjects these roots lie in two sets, one against each lateral wall of the sac, and in all probability this arrangement holds good, to a certain degree at least, in the living state. This would explain certain clinical experiences, such as cases of unilateral anaesthesia, or imperfect diffusion of the injected fluid in spinal analgesia, from its being entangled among the nerve roots of one side.

The cerebro-spinal fluid, in which are suspended the cord and the cauda equina, is contained within the double wall formed by the two wide sheaths,

the Dura and the Arachnoid. They may practically be regarded as one, since the subdural space is only a very narrow chink, a potential space just moistened with fluid. These two sheaths forming the sac almost fill up the spinal canal, being separated from the bony wall and ligaments only by some fatty and areolar tissue and by a plexus of veins. They are continued down beyond where the cord stops, and indeed the subarachnoid space is largest in the lumbar region, being here about  $\frac{3}{4}$  in. in breadth and  $\frac{1}{2}$  in. in depth antero-posteriorly. Opposite the 5th lumbar vertebra, the sac begins to taper and ends opposite the 2nd or 3rd Sacral spine. Thus a large proportion of the cerebro-spinal fluid is contained in the lumbar portion of the spine. The space communicates superiorly with the cranial subarachnoid space and with the ventricular system. Lumbar puncture itself is usually performed between the 3rd and 4th lumbar vertebræ, and still commonly as Quinke described it, that is, a little lateral to the middle line.

Having mentioned these facts, we proceed to the observations made on the dissecting-room subjects. The lumbar curve, convex forwards, makes the spinous processes lie very closely together. These processes are of moderate length, about 1 in. to  $1\frac{1}{4}$  in. (2.5 to 3.2 cm) in their middle, flattened from side to side, quadrangular in shape, with broad relatively flat extremities in the case of the upper two or three, less broad and nearly always rounded in the lower two or three. The average vertical breadth of the tip of the 1st lumbar spine is over  $\frac{3}{4}$  in. (2.1 cm), and in the case of the others steadily diminishes till the 5th is reached, where the average is only about  $\frac{1}{2}$  in. (1.4 cm). For the identification of the lumbar spinous processes, it is unreliable to count down from the 7th cervical spine, because the 6th cervical spine may be nearly as prominent as the 7th. So also, counting from the 12th rib cannot be trusted, because the rib may not project beyond the outer margin of the Erector Spinae and may be missed altogether. The best landmark is the line joining the highest points of the two iliac crests. This is pretty constant, regardless of age and sex, in crossing the 4th lumbar spine. German writers give different levels. In the case of 15 out of 17 bodies examined in the dissecting room, the line crossed the 4th spine, generally in the middle, and in the other two bodies the space between the 3rd and 4th spines. It is quite unreliable to judge of the level of the iliac crests from skiagrams, since in these the lamp is usually placed perpendicularly over the umbilicus.

The relation of the lumbar spinous process to the body of the vertebra is such that, when the latter is placed horizontally, the upper margin of the spine is at the level of the horizontal plane through the middle of the body, and the lower margin about  $\frac{1}{4}$  in. lower than the under surface of the body. The 5th spine is often altogether below the level of the body. It is to be noted, however, that the lumbar spinous processes are practically horizontal, at least in the lower ones, because of the oblique position of the body of the vertebra.

The interval between the neural arches of two adjoining lumbar vertebræ is a somewhat triangular opening with the base below, the apex pointing upwards and backwards, and the angles rounded. It is bounded externally by the inferior articular processes of the upper vertebra and the lower margin of the laminae running from these articular processes upwards, inwards and backwards to meet in the base of the spinous process of the same vertebra. The plane of this boundary therefore runs downwards and forwards, making an angle of about  $45^\circ$  with the vertical and the horizontal. The lower boundary or base of the triangle is formed by the upper margin of the laminae of the vertebra below. To one looking from behind, this boundary usually appears as one straight line, but it really consists of two lines running inwards and somewhat backwards to meet in the base of the spinous process, *i.e.*, two lines meeting at a very wide angle but lying in a horizontal plane. Sometimes the plane is not horizontal, when the middle of the lower boundary is at a higher level than the two extremities and so encroaches on the interval between the laminae, giving a somewhat kidney-shaped opening. The lower boundary lies deeper from the surface than the upper one owing to the fact that the lamina, especially in the lower two or three vertebræ, slopes from its upper to its lower border down and back at an angle of about  $45^\circ$  to the vertical. Hence an exploring needle would strike the upper boundary of the space at a depth of about 1 in. from the level of the tip of the spinous process, whereas the lower boundary is about  $\frac{1}{2}$  in. deeper. It follows from this that in puncturing outside the middle line, one gets the widest interval by directing the needle somewhat upwards as well as forwards and inwards.

As regards the actual size of the interval, this varies with the flexion and extension of the spine. In full extension the spinous processes practically touch each other. Flexion is the freest movement in the lumbar region,

and if one assumes that two adjoining spines separate to the extent of  $\frac{1}{2}$  in., the interval between the laminae increases by a half to two-thirds of that distance, that is  $\frac{1}{4}$  in. to  $\frac{1}{3}$  in., since the axis of rotation is a transverse one approximately through the middle of the intervertebral disc. The base of the triangular interval is therefore movable. In order to get the largest space possible, the patient is bent forward when the puncture is being made. The space bears a considerable resemblance to the perineal segment of the pelvic outlet and between the upper and lower lumbar regions are differences which correspond very closely to the differences between the male and female pubic arch. The width of the interval depends on the distance apart of the two lower articular processes of the upper vertebra, and this varies in different persons. As is known, it frequently increases steadily from the first to the last lumbar vertebra, and the spaces broaden out accordingly. The width is often about the same in the 2nd, 3rd and 4th interspaces varying from  $\frac{1}{4}$  in. to over  $\frac{3}{4}$  in., the average being almost  $\frac{3}{4}$  in. Between the 4th and 5th lumbar and between the 5th lumbar and 1st sacral vertebrae, the width in the bones examined lay between  $\frac{3}{4}$  in. and  $1\frac{1}{2}$  in.

For ordinary lumbar puncture, the needle is introduced usually opposite the interval between the 3rd and 4th spine,  $\frac{1}{4}$  in. to  $\frac{1}{3}$  in. to one side of the middle line in order to clear the spinous processes. It is pushed in with a slight inclination upwards and inwards, aiming at reaching the middle line at a point about  $1\frac{1}{2}$  in. to  $1\frac{3}{4}$  in. (4 to 4.5 cm) deep from the tip of the nearest spinous process. The patient should have the spine bent and may be either sitting or lying on one side. The needle passes smoothly through the mass of the Erector Spinae muscle with its tendinous bands, and meets with first somewhat increased and then diminished resistance as it passes through the Ligamentum Subflavum. In one case out of 17, the vertebrae and spinous processes were so altered by pathological bony excrescences, that there was considerable difficulty in getting the needle through the intervals between the laminae. Puncture for the purpose of inducing spinal anaesthesia is by nearly all surgeons practised in the middle line. This necessitates going through the three ligaments, Supraspinous, Interspinous and Lig. Subflavium, the latter two of which typically consist of two lateral sheets with looser tissue between. The needle has to be guided forwards and very slightly upwards between the margins of the adjacent spinous processes, which are

to be regarded as practically straight. Bleeding from the venous plexuses lying round the bases of the spinous processes and in the spinal canal between the bones and the meninges is said to be less frequent with puncture in the middle line than in the other method, and certainly the veins tend to lie, though not very symmetrically, in lateral sets. Still it occurs occasionally that after repeated failures to find fluid through the middle line, one succeeds on trying Quincke's lateral puncture. Though trickling away of the fluid is the only reliable sign that the point of the needle has entered the sac, yet it is useful to know how deep the needle has to go. In 17 bodies, the depth from the tip of the spinous process (the landmark least affected by the musculature and the state of nutrition) to the bottom of the spinal canal ranged from 2 in. (5.1 cm) to  $2\frac{1}{2}$  in. (6.4 cm), the average being  $2\frac{1}{8}$  in. (5.5 cm). In dried skeletons and lumbar vertebræ, the range was from  $1\frac{3}{4}$  in. to 2 in. (4.3 cm to 5.1 cm) with an average of 4.9 cm. The difference can be accounted for by the thickness of the skin and subcutaneous tissue covering the spinous processes. As the point of the cannula should come to lie in the hindmost part of the sac, the antero-posterior diameter of which may be taken as approximately  $\frac{1}{2}$  in., the needle ought to penetrate  $1\frac{1}{2}$  in. to  $2\frac{1}{4}$  in. (4 to 6 cm). In a child the distance is under an inch (2 to 2.5 cm). The width of the lumbar bony canal is  $\frac{3}{4}$  in. to 1 in., averaging nearly 1 in., and the antero-posterior diameter  $\frac{3}{4}$  in., and since the sac fills the greater part of this space, the needle, once it passes the interlaminar opening, can hardly fail to hit the sac. Failure to find fluid may be due to the absence of a Cisterna, at least so low down, but far more frequently to technical errors, such as blocking of the needle by a shred of flesh or by a nerve lying in front, or penetrating either not deep enough or too deep. In the latter case both front and back walls of the sac are perforated, but it does not follow that the progress of the Cannula is stopped at once by bone. It may pass through the posterior common ligament and enter the spongy substance of the lower half of the body of the upper vertebra or the upper part of the intervertebral disc. The Vena Basis Vertebræ and the big transverse veins flowing outwards from it beneath the Posterior Common Ligament is in a position to be punctured, with resulting flow of blood which might be mistaken for blood effused into the subarachnoid space.

ORDINARY MEETING.

26TH JANUARY, 1909.

Mr. N. J. CALDER, M.A., President, in the Chair.

The minutes of last meeting were read and approved.

Captain Young, M.B., I.M.S., read a paper on "The Sikhs," introducing his subject with a rapid survey of the different tribes scattered throughout India. He gave the two commonly accepted theories of the origin of the Sikhs, and then dwelt at greater length on the religious beliefs of the tribe. Their habits, including their physical characteristics and customs, were also sketched, notably those relating to baptism and marriage. Captain Young added much interest to his paper by quoting several personal experiences.

On the motion of the secretary, Mr. Easton, a hearty vote of thanks was accorded to Captain Young for his instructive paper.

## ORDINARY MEETING.

23RD JUNE, 1909.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of last meeting were read and approved.

A paper on "The Lengua Indians of El Gran Chaco, Paraguay, South America," was read by Dr. J. W. Lindsay. He described the personal appearance and anatomical peculiarities of these Indians, and illustrated his remarks by showing a number of slides. He also described many of their characteristic habits and customs, especially as regards infanticide, death, and burial. He gave many of his own experiences among the tribe.

Dr. Lindsay presented a large number of valuable native articles to the anthropological museum.

On the motion of the president, Mr. Calder, a hearty vote of thanks was given to Dr. Lindsay both for his interesting paper and for his additions to the museum.

## ORDINARY MEETING.

26TH JUNE, 1909.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of last meeting were read and approved.

Dr. G. A. Turner, medical officer to the mines of Johannesburg, South Africa, gave a paper, fully illustrated by photographs and lantern slides, on "The natives of South Africa." The photographs represented the natives in their characteristic postures, apparel, and methods of living, and the peculiarly inaccessible situation of some of the native huts was well shown. The manner in which the people fed, and their agricultural methods were strikingly illustrated by lantern slides. Dr. Turner also alluded to the aesthetical side of the native's life, in which he pointed out many curious customs, such as the partial or complete marking of the body and the filing of the teeth.

On the motion of the president, Mr. Calder, a hearty vote of thanks was accorded to Dr. Turner for his highly interesting paper. The treasurer's report for the last year was read and adopted. The following were elected office-bearers for the ensuing session :—

*Honorary President*—Prof. R. W. REID, M.D., F.R.C.S.

*Honorary Vice-Presidents*—ALEX. LOW, M.A., M.B., C.M.

J. D. FIDDES, M.A., B.Sc., M.B., Ch.B.

*President*—JAMES FETTES.

*Vice-President*—ROBERT M. EASTON, M.A.

*Recording Secretary*—RICHARD R. M. PORTER, M.A.

*Secretary and Treasurer*—GEORGE STUART, M.A.

The retiring officials were heartily thanked for their services.

## ORDINARY MEETING.

OCTOBER, 1909.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of the last meeting were read and approved.

Mr. A. V. Liley, who is engaged in missionary work in the north of Africa, read a paper on "The Arabs," and he showed clearly the main characteristics of that people as regards their habits, customs, and religious observances. He emphasised the necessity for reform, and pointed out the limitations of their civilisation. The paper was fully illustrated by beautiful lantern slides, which he afterwards presented to the Anthropological Museum.

On the motion of Professor Reid, a hearty vote of thanks was accorded to Mr. Liley for his paper.

## ORDINARY MEETING.

16TH DECEMBER, 1909.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of the last meeting were read and approved.

A paper on "The Influence of Environment on Man" was read by Prof. Ridgeway, Cambridge University. Taking for his chief example the peoples of Europe, Prof. Ridgeway pointed out that the differences one met with in speech, custom, pigmentation and shape of skull were not necessarily due to the intermingling of two or more sets of people of a totally different race; on the other hand, such changes were really developmental, and explicable by the reaction of environment upon one and the same people,—the original inhabitants of that continent. Postulating that Europe was inhabited from the first by an Aryan race, he set forth comparative proofs to substantiate his theory that colouration, shape of skull, &c., might be due to the moulding influence of environment, by pointing out the gradual change in appearance presented by members of the horse tribe in different zones of the same continent. Such change was both pigmentary and osteological, and here, at least, the various tribes had a common ancestry. He further controverted the idea that colouring was for protective reasons.

The change in language was not due to the adoption of the conqueror's tongue by the conquered, nor vice-versâ; on the contrary, the language spoken was an Aryan one from the start, and the latitude of change was but dialectic variations of the same tongue, due to the physical changes in the vocal organs produced by the environment. Further, it was argued that no satisfactory explanation of the present state of matters could be got by appealing to

pigmentation, osteological differences, or inter-marriage; the criterion of race that appeared the surest was that of language, both from the foregoing reason, and from the fact that the laws governing an interchange of language make such interchange extremely qualified.

On the motion of Prof. J. Arthur Thomson, who added a few words of appreciation and criticism, a hearty vote of thanks was given to Prof. Ridgeway for his learned paper.

## ORDINARY MEETING.

5TH MARCH, 1910.

Mr. JAMES FETTES, President, in the Chair.

The minutes of the last meeting were read and approved.

Dr. J. D. Fiddes, M.A., B.Sc., Junior Assistant in the Anatomy Department of the University, gave a description of a "Beothuc" calvaria. He primarily showed the dissimilarity which existed between the so-called Beothuc skull which he was now considering and a true Beothuc. The difference was most marked as regards length of skull. Aided by diagrams he disproved its identity as such very decisively. The remainder of the paper was devoted to a description of the Esquimaux, their customs, mode of life, and their primitive civilisation. References were also made to articles of dress, domestic utensils, and weapons in common use, excellent examples of which are to be seen in the Esquimaux section of the University Anthropological Museum.

On the motion of Mr. Fettes, a very hearty vote of thanks was accorded to Dr. Fiddes for his paper.

DESCRIPTION OF A "BEOTHUC" CALVARIA AND AN  
ESKIMO SKULL,

by

J. D. FIDDES, M.A., B.Sc., M.B., Ch.B.,

Junior Assistant to Professor of Anatomy, University of Aberdeen.

In 1909, Sir Wm. MacGregor, late Governor of Newfoundland, presented to the Aberdeen University Anatomical Museum a Calvaria which was found in a prehistoric grave in Newfoundland. The grave and mode of burial he stated to be characteristically Beothuc.

Along with this Calvaria he presented an Eskimo Skull found on the Coast of Labrador adjoining Newfoundland.

The two specimens are very similar in appearance as regards the condition of the bones, both being white and weather-beaten.

The Beothuc Calvaria consists of the following bones:—

Frontals complete except the Orbital plates.

Parietals complete and the upper part of the Occipital bones as far down as  $\frac{1}{2}$  inch below Inion. It appeared to have formed part of a skull much above the average in size and was distinctly Dolichocephalic in character.

The measurements were:—

Greatest Length	- -	189 m.m.
Greatest Breadth	- -	120 m.m.
Cephalic Index	- -	688 <i>i.e.</i> , Dolichocephalic.

The Frontal bones made a most marked recession backwards to Nasion.

The measurements of the Eskimo Skull presented at the same time were:—

Greatest Length	- -	185 m.m.
Greatest Breadth	- -	130 m.m.
Cephalic Index	- -	703 <i>i.e.</i> , Dolichocephalic.

The other measurements of the skull show it to be typically Eskimo, and also very similar to the so-called Beothuc Calvaria.

All described Beothuc skulls have been Brachycephalic in character, as they are supposed to be related to the Mimaec, a branch of the great Algonkin race of Indians which is essentially a Brachycephalic race.

Tracings of the skulls were made by means of the dioptrograph, and in both the lateral and vertical aspect the Beothuc and Eskimo were practically identical, whereas when compared with one of the Algonican race the marked difference was at once seen.

## ORDINARY MEETING.

2ND DECEMBER, 1910.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of the last meeting were read and approved.

Prof. R. J. A. Berry, M.D., Melbourne University, Australia, read a paper on "The Place in Nature of the Tasmanian Aboriginal." At the outset he dealt generally with the problem of the nature of the aboriginal inhabitants of the Australian region, and regarded his own researches on the subject as supporting the view that the inhabitants of the Australian mainland were of a mixed race, while they indicated the homogeneity of the Tasmanian. Prof. Berry then proceeded to discuss the relations of the Tasmanian aboriginal with the anthropoid apes, *Pithecanthropus*, *Homo primigenius*, *Homo fossilis*, and *Homo sapiens*, illustrating his remarks with diagrams shown by the epidiascope. His deductions were based on a minute study of the Tasmanian calvaria.

On the motion of the President, Mr. W. P. Baxter, a hearty vote of thanks was accorded to Prof. Berry for his interesting paper.

In acknowledging the vote of thanks Prof. Berry remarked that the Aberdeen University Anatomical and Anthropological Society was at one time the only Anatomical Society in Europe—and probably the only one in the world—carried on by students. He recognised its value during his term as Examiner in Anatomy at Aberdeen University, and was so impressed with its usefulness that on going out to Melbourne one of his first steps was to organise a society there, on the same lines as the Northern Society at Aberdeen.

Professor Berry's paper has already been published in the *Proceedings of the Royal Society of Edinburgh*, 1910.

## ORDINARY MEETING.

A meeting was held on Thursday, May 15th, 1911. Rev. F. G. Bowie, M.A., of the United Free Church of Scotland Mission, New Hebrides, delivered a lecture on the New Hebrides and their Inhabitants. Dr. Low, Vice-President of the Society, who occupied the chair, described a skull presented by Mr. Bowie to the museum.

Mr. Bowie said, "The New Hebrides were discovered by the Spaniards but were named by Captain Cook. Geologically the islands were coralline and volcanic in their structure; present day volcanic action was seen in three active volcanoes, numerous submarine eruptions and frequent earthquakes, while between the islands of Tongoa and Epi a new island had sprung up and disappeared again. The islands varied in size from mere dots to Santo, which is 40 miles broad by 80 miles long, and has mountain masses reaching over 5200 feet.

"The people are Melanesian with a Polynesian admixture; some are big while others are of a medium and smaller size. The Polynesian element is strong on the islands of Futuna, Aniwa, Fila, and Nule, half of Emae and noticeable here and there upon the larger islands. These different peoples, although living on the same small islands, showed little signs of fusion, for two or three tribes, absolutely with different languages and customs, were to be found within very small areas. These facts point to various immigrations probably within comparatively recent times, but of these in the south of Santo, to which his personal knowledge was confined, Mr. Bowie, although from the Ethnology of the people he thought there were few such intrusions, could find no evidence from the traditions of the people.

"This complexity was illustrated by the fact that on Santo alone there are four missionaries, each one of which has to speak a different language, and some require more to work their districts.

“The characteristic beliefs of the people are animistic, various objects of nature being credited with a personality and generally ready to work evil on any one who may unknowingly cause them offence. So too the spirits of the departed live and frequent their old haunts. The spirits have to be propitiated by sacrifices even of human beings in the old days. Above all the minor spirits there is, however, a Supreme Being, Soketatai.

“The people have myths of the original cause of mortality, about fire, darkness, and a great flood. There is a story of a man who was swallowed by a whale, told in most of the islands with varieties of local colouring.

“The people’s most important possession is the pig. In the north boars were given in exchange for wives, and were the basis of the caste system: a man’s position depending on the number of tusked pigs he had killed, until ultimately he rose to the position of chief. The women had no place in the caste system.

“While the pig was the only animal of importance on the islands, the dog and cat, and two species of rat—the European brown rat and a native species—were also found. Bats, several species of snakes and lizards were also common. Birds were not very numerous except in time of storm. These may be mentioned:—Pacific terns and small cranes, some wild duck, seven kinds of pigeon, owls, hawks, a small turkey, king fisher, a jay confined to Santo, and a number of paroquets. The natives watch for every bird with bow or gun. Till lately, bow and arrow, some poisoned, and stone or shell axes or adzes were the only instruments used by the people.”

## ORDINARY MEETING.

A meeting of the Society was held in the Anatomy Theatre, on Monday, 14th November, 1911, when Mr. C. W. Somerville, M.B., Ch.B., D.P.H., of the Wuchang-Hankow Mission of the London Missionary Society, delivered a lecture, profusely illustrated by lantern, on the people of Central China.

Mr. W. P. Baxter, President of the Society, who was in the chair, referred to Dr. Somerville's intimate knowledge of the people, acquired during many years' experience in connection with a large and successful medical mission.

At the outset the lecturer made a few interesting comments upon the revolutionary movement arising in China. It was not wholly unexpected by the missionaries and others who knew China well. The expression of the new spirit of genuine love of country and national ambition in revolt, not against law and order, but against a system of government under which China could never take its place among the nations, the movement under men like its present leaders may be the beginning of a new era of social and commercial progress.

In the course of a few remarks on the fighting at present going on around Hankow, Dr. Somerville incidentally remarked that his sympathies here must be somewhat divided, as both Tuan-shih-kai and the revolutionary commander were warm supporters of his medical work.

Passing to the people themselves, in addition to the typical Chinaman, there was another marked type, individuals of which were not infrequently encountered. These resembled very strongly the N. American Indian in their cast of feature; handsome large-featured men with almost aquiline noses, big well-cut lips, and without the obliquity of the rictus oculi of their neighbours. This was interesting in the light of the theory of the peopling of N. America by emigration from East Asia by what is now Behring Straits and the Aleutian Islands.

Plans of Chinese houses were shewn on the screen. Built round an open square or quadrangle, they had no windows on the outer walls and no interior fireplaces. In the cold winter season the people added more clothes. The bad ventilation of the houses and the lack of personal cleanliness were fruitful causes of disease among the people.

Dr. Somerville shewed an interesting series of slides, illustrating medical and surgical work among people on the margin between the temperate and tropical zones. Schizostemum disease had become endemic and was proving a terrible scourge, and in a country like China very little could be done to prevent it, and most forms of treatment were unsatisfactory.

The native medicine men were, unfortunately, possessed of one ruling principle, which consisted in sticking needles into the part which hurt, with the result that very often serious consequences resulted, as when a pin which had been previously in an abscess was pushed through the abdominal wall. The people were, however, beginning to realize the superiority of western medicine, and a number of the medical missions had organized medical schools, which were, however, quite unable to cope with the numbers of students seeking admission.

At Hankow they had just sent out their first batch of students who had completed a five years' curriculum, and some of these men were quite up to the standard of the practitioners sent out by home colleges.

## ORDINARY MEETING.

27TH DECEMBER, 1911.

Mr. IAN BISSET, M.A., President, in the Chair.

The minutes of the last meeting were read and approved.

Mr. A. Elmslie Campbell, M.A., described six Ibo crania from the Owerri district of Southern Nigeria. The crania were presented to the Anatomical Museum by Dr. J. G. Copland, West African medical staff. Mr. Campbell gave a detailed and comparative description of all the skulls, and tabulated the various measurements, indices, &c. The paper was illustrated by tracings of the various normæ of the skulls.

Anatomical variations were recorded by several members of the society.

On the motion of Mr. Bisset, a hearty vote of thanks was accorded to Mr. Campbell for his excellent paper.

The treasurer's report for the last year was read and adopted.

The following were elected office-bearers for the ensuing session:—

*Honorary President*—Professor R. W. REID, M.D., F.R.C.S.

*Honorary Vice-Presidents*—ALEX. LOW, M.A., M.B., C.M.

NORMAN J. CALDER, M.A., M.B., Ch.B.

JAMES DAVIDSON, M.B., Ch.B.

*President*—A. HUNTER BROWN.

*Vice-President*—EDWARD GORDON, M.A.

*Secretary*—J. ALEXANDER INNES.

*Recording Secretary*—R. B. MYLES.

*Treasurer*—THOMAS MENZIES.

*Committee*—MESSRS. D. FETTES, R. D. LAWRENCE and A. W. ANDERSON.

A DESCRIPTION OF SIX EAST AFRICAN SKULLS, WITH  
MEASUREMENTS, INDICES, AND TRACINGS OF SAME,

by

A. ELMSLIE CAMPBELL, M.A.

In the following examination of six skulls from Southern Nigeria, the measurements and indices are those adopted by Flower, with the addition of the altitudinal index of Duckworth. In the appended consideration of each skull the plan advised by Duckworth is followed. The accompanying tracings of the normæ laterales of the skulls were made with the dioptrograph and reduced to one half of the natural size.

1.—YORUBA SKULL FROM ABEOKUTA, S. NIGERIA.

Length, 181 mm.	Basialveolar length, 94. (Alveolar margin absorbed).
Breadth, 129.	Alveolar index, 1093. (Prognathous).
Cephalic index, 713. (Dolichocephalic).	Nasal height, 44.
Height, 127.	Nasal width, 30.
Altitudinal index, 702. (Tapeinocephalic).	Nasal index, 682. (Platyrrhine).
Basinasal length, 86.	Orbital width, 36.
	Orbital height, 33.
	Orbital index, 917. (Megasemic).

Consideration of the skull :—

*Cranial portion.*—The transverse curve is scaphoid. The sutures are normal but very tortuous. On the right the frontal, parietal, squamosal, and sphenoid bones meet at a point, *i.e.*, there is no parieto-sphenoid suture.

*Facial portion.*—The lacrymo-ethmoidal suture is present. The infra-orbital suture does not persist. The nasal aperture is broadly ovoid. The nasal spine is median. The nasal bones are irregular in shape, the right being broader but shorter than the left.

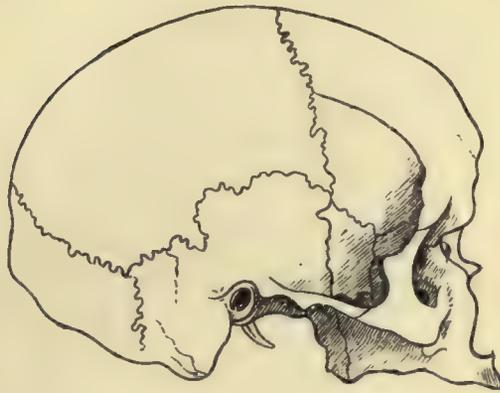


Fig. 1.—Youba Skull from Abeokuta, S. Nigeria.



Fig. 2.—Youba Skull from Abeokuta, S. Nigeria.



*Palate.*—The alveolar margins are absorbed. The post-palatine spine is rounded. The anterior palatine foramen is very prominent. The sutures are regular.

*Temporal fossa.*—Sutures at right pterion =  $\times$  : at left pterion = **H**. The post orbital wall is complete on both sides.

*Base of skull.*—The glenoid fossæ are normally deep. The styloid processes are both intact and measure 20 mm. in length. The basilar suture is closed.

*Dentition.*—Absorption of the alveolar margin (probably post-mortem) has taken place.

*Mandible.*—The mandible is absent.

## 2.—YORUBA SKULL FROM ABEOKUTA, S. NIGERIA.

L. 185.	Ai. 1071. (Prognathous).
B. 132.	N.H. 44.
Bi. 714. (Dolicho-cephalic).	N.W. 27.
H. 135.	Ni. 614. (Platyrrhine).
Hii. 730. (Metrio-cephalic).	Ow. 36.
B.H. 99.	Oh. 32.
B.A. 106.	Oi. 889. (Megasemic)

*Cranial portion.*—The transverse curve of the vault is gently rounded and is not keeled. The calvaria has been badly damaged, the extent of the damage being indicated in the tracing of the N. verticalis. The sutures are normal in number and tortuous. The right parieto-frontal (coronal) suture has commenced to close, and is obliterated for about one inch from the bregma. The right parietal foramen is present.

*Facial portion.*—The supraorbital notches are well marked. The lacrymo ethmoidal suture is present. The infraorbital suture persists on both sides. Nasal aperture is irregularly pyriform. The lower margins are rounded. The nasal spine is small. The nasal bones are regular and fairly large.

*Palate.*—The general contour is elliptical. The post-palatine spine is rounded. The palatine sutures are regular; the anterior palatine foramen is deep and prominent.

*Temporal fossa.*—Sutures at pterion are normal. **H**. The fossæ are deep. Temporal ridge (inferior) well marked. Postorbital wall on right is incomplete.

*Base of skull.*—The glenoid fossæ are deep. The styloid process on right is missing.

*Dentition*.—All four incisors and the two last right molars are wanting. The remaining teeth are in perfect condition.

The *mandible* is absent.

The *basilar suture* is closed.

### 3.—IBO SKULL FROM OWERI DISTRICT, S. NIGERIA.

L.	179.	Ai.	970. (Orthognathous).
B.	134.	Nh.	49.
Bi.	749. (Dolicho-cephalic).	Nw.	28.
II.	133.	Ni.	571. (Platyrbine).
Hi.	743. (Metrio-cephalic)	Ow.	41.
B.N.	101.	Oh.	36.
B.A.	98.	Oi.	878. (Mesoseme).

The transverse curve of the calvaria is rounded. The sutures are normal and very serrated. The sutures between the two parietals and the occipital are open.

The *orbits* are noticeable on account of the deep lachrymal groove and the prominent lachrymal hamulus. The posterior border of the lachrymal groove is thin and sharp.

The *nasal aperture* is noticeable on account of the very prominent subnasal fossæ on both sides. The width of the fossæ is fully 6 mm. Between them is a prominent nasal spine. The nasal bones are regular in shape and equal in size.

The *palate* is parabolic in outline. The alveolar margins are high. The postpalatine spine is blunt and prominent. The sutures are regular. The palatal surface is very rough.

At pterion the parietal meets the sphenoid, but a wormian bone intervenes behind the point on the right. On the left side a wormian bone is situated at pterion, *i.e.*, parietal does not meet sphenoid nor frontal squamosal.

The glenoid fossa is deep on both sides. The basilar suture is closed. The styloid processes on both sides are absent. The right jugular foramen is abnormally large, and is divided into two compartments by a transverse spicule of bone.

*Dentition*.—All the permanent teeth have been erupted. The molars on each side are present and are sound.

The *mandible* is absent.

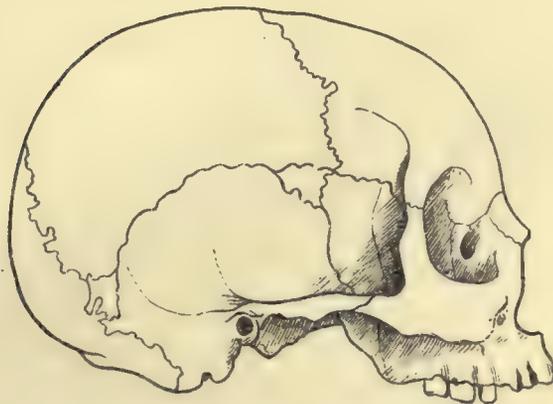


Fig. 3.—Ibo Skull from Oweri District, S. Nigeria.

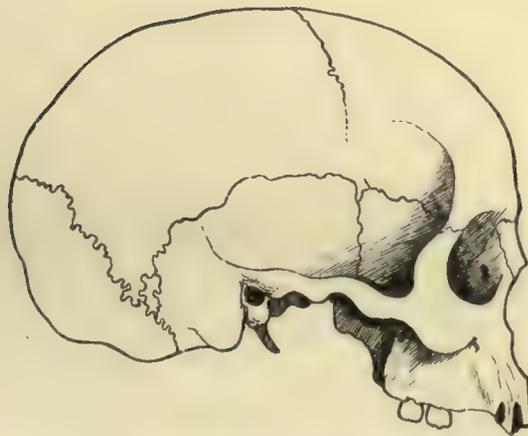


Fig. 4.—Ibo Skull from Oweri District, S. Nigeria.



4.—IBO SKULL FROM OWERI DISTRICT, S. NIGERIA.

L. 198.	Ai. 1010. (Mesognathous).
B. 138.	Nh. 49.
Bi. 697. (Dolicho-cephalic).	Nw. 28.
H. 135.	Ni. 571. (Platyrrhine).
Hi. 682. (Tapeino-cephalic).	Ow. 40.
BN. 102.	Oh. 36.
BA. 103. (Approximate. Alveolar margin broken).	Oi. 900. (Megaseme).

This skull is large and the bones of the cranium generally are strong and heavy.

The sutures are regular. The sagittal suture has commenced to be obliterated at lambda. Several small wormian bones are present at the position of the posterior fontanelle.

The left supraorbital notch has become a foramen. The lachrymal hamulus is small.

The nasal bones are small and regular.

The position of the bones at pterion is normal.

The alveolar margins are high. The palatine sutures are normal. The intermaxillary suture is quite obliterated. The post palatine spine is blunt and rounded.

The basilar suture is obliterated.

All the projecting processes and the ridges of the skull are well marked, denoting probably a highly muscular subject.

*Dentition.* All the permanent teeth have been erupted.

The *mandible* is absent.

5.—IBO SKULL FROM OWERI DISTRICT, S. NIGERIA.

L. 176.	Ai. 1051. (Prognathous).
B. 137.	Nh. 48.
Bi. 778. (Mesati-cephalic).	Nw. 26.
H. 134.	Ni. 542. (Platyrrhine).
Hi. 761. (Metrio-cephalic).	Ow. 36.
BN. 99.	Oh. 36.
BA. 104.	Oi. 1000. (Megaseme).

The transverse curve of the calvaria is slightly scaphoid. The sutures are normal and generally open. About an inch on each side of lambda are two small bones between the sutures, which, from their position, are probably true interparietal bones.

The lachrymal fossæ are large. The nasal bones are regular in shape. The nasal spine is prominent.

The arrangement of the bones and the sutures at pterion is normal.

On the base of the skull all prominences are well marked, the surface in general being rough. The hard palate is deep behind, but slopes rapidly downwards interiorly. The surface is rough and pitted. A spicule of bone forms a foramen for the palatine vessels in front of the normal post. palatine foramen.

The external pterygoid processes are broad and distinctly wing-like in shape. The spines of the sphenoid are prominent. The spinous processes are long, thin, and tapering. The basilar suture is closed. The mastoid processes are prominent and the grooves deeply marked. The superior and inferior curved lines of the occipital are well marked.

*Dentition.*—On both sides the two post. molars are lost and their alveoli apparently absorbed. The eruption of the teeth was apparently somewhat irregular. The remaining teeth are sound.

The *mandible* is absent.

#### 6.—IBO SKULL FROM OWERI DISTRICT, S. NIGERIA.

L. 175.	Ai. 1033. (Prognathous).
B. 127.	NL 38.
Bi. 726. (Dolicho-cephalic).	NW. 25.
H. 133.	Ni. 658. (Platyrrhine).
Hi. 760. (Metrio-cephalic).	Ow. 36.
BN. 92.	Oh. 32.
BA. 95.	Oi. 889. (Megaseme).

The sutures are normal in number and arrangement. The transverse curve of the calvaria is slightly scaphoid.

The nasal bones are irregular in shape and size. The nasal spine is blunt and indistinct.

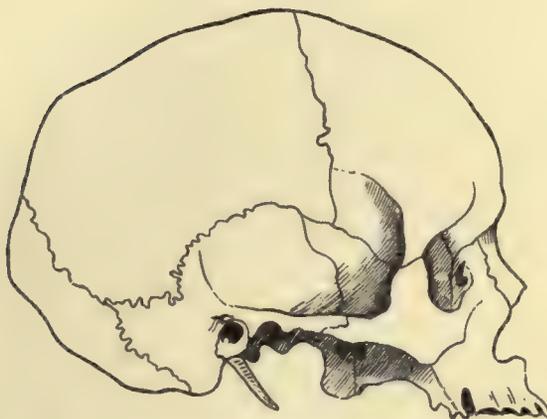


Fig. 5.—Ibo Skull from Oweri District, S. Nigeria.

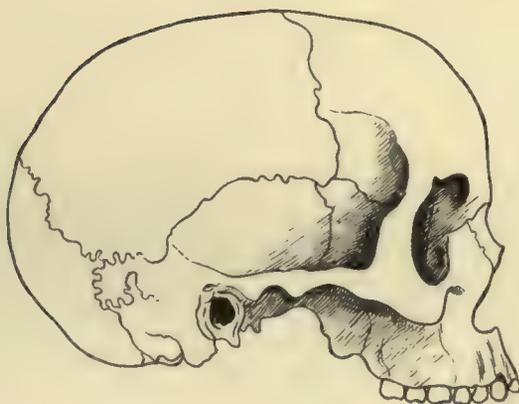


Fig. 6.—Ibo Skull from Oweri District, S. Nigeria.



The ethmoid and the ethmoidal cells have been displaced artificially and cane strung through the spaces thus formed for carrying purposes.

The arrangement at the right pterion is normal; on the left side there is a small epipteric bone. The alveolar margins are high. The hard palate is deep. The sutures show the normal crucial form. On both sides in front of the posterior palatine foramen, another foramen is formed by an over-arching spicule of bone, for the anterior palatine vessels.

The glenoid fossæ are deep. The spinous processes are broken off. The basilar suture is closed. Most of the ridges and surfaces for insertion of muscles are well marked.

*Dentition.*—All the permanent teeth have been erupted. The teeth present are all sound.

The *mandible* is absent.

TABLE OF INDICES.

Skull No.	1.	2.	3.	4.	5.	6.	Average.		
Index.	Ci.	713	714	749	697	778	726	729	Dolicho-cephalic.
	Hi.	702	730	743	682	761	760	730	Metrio-cephalic.
	Ai.	1093	1071	970	1010	1051	1033	1038	Prognathous.
	Ni.	682	614	571	571	542	658	606	Platyrrhine.
	Oi.	917	889	878	900	1000	889	912	Megaseme.
	Yoruba.		Ibo.						

While the number of skulls measured is much too small to form the basis of any definite statement, the tendency of the skull is shown to be as stated above:—

Dolicho-cephalic.	Prognathous.	Megaseme.
Metrio-cephalic.	Platyrrhine.	

The closer correspondence between the skulls of the individual tribes will be noticed, especially in the case of the two Yoruba specimens. Specimen No. 4 seems to be slightly abnormal in some respects.

## ORDINARY MEETING.

18TH JANUARY, 1912.

Professor R. W. REID, M.D., F.R.C.S., Honorary President,  
in the Chair.

The minutes of the last meeting were read and approved.

The Rev. T. T. Matthews, D.D., gave an address on "Malagasy Life and Customs," and his material was obtained firsthand during a period of thirty years spent as a missionary on the island of Madagascar.

Dr. Matthews enlarged upon the great respect and awe which the natives have for the white man and his medicine, two things which to the Malagasy mind are inseparable. He spoke of the native "medicine-man" and his decline, and exhibited several charms which he had obtained from one of these gentlemen. He also discussed the customs of the people and their various rites.

On the motion of Dr. Alex. Low a hearty vote of thanks was accorded to Dr. Matthews for his very interesting address.

## ORDINARY MEETING.

25TH JANUARY, 1912.

Mr. A. HUNTER BROWN, President, in the Chair.

The minutes of the last meeting were read and approved.

A paper on "Manners and Customs in Central China" was read by the Rev. W. E. Entwhistle, of the China Inland Mission. He dealt chiefly with the ancient medical customs and superstitions, and traced the evolution of various Chinese surgical instruments. Like many other tribes the people of China have a great suspicion of the white "medicine-man," but as Mr. Entwhistle pointed out this is gradually disappearing. After the paper was read, many interesting articles, relating chiefly to the life of old China, were shown and explained.

On the motion of the Secretary, Mr. J. A. Innes, a cordial vote of thanks was accorded to Mr. Entwhistle.

## ORDINARY MEETING.

1ST FEBRUARY, 1912.

Mr. A. HUNTER BROWN, President, in the Chair.

The minutes of the last meeting were read and approved.

A paper was read by the Secretary, Mr. J. Alexander Innes, on "The Meaning and Value of Anthropology." He spoke of the scientific and of the practical value of anthropology and emphasised the importance of the latter. The particulars of measurement and classification of skulls were given, and the temperaments and sociality of the four divisions of the human race were contrasted.

Mr. Neil Cantlie then read a paper on "A New Method of Division of the Liver." His paper was a summary of the conclusions arrived at by Mr. James Cantlie, M.D., F.R.C.S., who first suggested the new method of division. The line of division ran from the gall-bladder in front to the inferior vena cava behind. Mr. Cantlie argued that this was the rational method of division and supported his argument by embryological, morphological, and clinical data.

On the motion of Dr. N. J. Calder a hearty vote of thanks was accorded to Mr. Innes and Mr. Cantlie for their papers.

## ORDINARY MEETING.

9TH FEBRUARY, 1912.

The minutes of the last meeting were read and approved.

Mr. J. F. Tocher, B.Sc., F.I.C., Lecturer on Statistics and Statistical Methods, read a paper on "Statistical Methods applied to Anthropometry."

After discussing the application of exact statistical methods to anthropometry, Mr. Tocher dwelt on the theoretical side of the study, and said that in the past there had been in many cases too much speculation without any real foundation in fact. In other cases the data used had been too meagre.

What was really wanted was a thoroughly organised and well thought out survey of the British Isles. He also referred to the important part which the Society might play in such a survey.

The lecture was fully illustrated by diagrams shown with the epidiascope.

## ORDINARY MEETING.

22ND FEBRUARY, 1912.

Mr. E. GORDON, M.A., Vice-President, in the Chair.

The minutes of the last meeting were read and approved.

Mr. A. Hunter Brown, President of the Society, gave a paper on "The Pelvic Diaphragm and Pelvic Fasciæ."

In his discussion he divided the pelvic floor into two layers; one being formed by the sphincters, the other being the pelvic diaphragm, formed by the levatores ani and coccygei. Mr. Brown entered into the comparative anatomy of this diaphragm, and traced its evolution from the three flexor muscles, viz, pubo-coccygeus, ilio-coccygeus, and ischio-sacralis of the tails of lower animals. He also dealt with the changes in origin of the levator ani, and explained Prof. P. Thompson's theory of the "white lines" of the pelvis.

In describing the fasciæ of the pelvis, Mr. Brown entered into detail regarding the formation of Alcock's canal and the structure of the triangular ligament.

On the motion of Mr. R. D. Lawrence a cordial vote of thanks was accorded to Mr. Brown for his paper.

ORDINARY MEETING.

25TH APRIL, 1912.

Dr. JAMES DAVIDSON, Honorary Vice-President,  
in the Chair.

The minutes of the last meeting were read and approved.

A paper on "Glimpses of Prehistoric Man" was read by Mr. R. D. Lawrence. Working backwards from modern man, he outlined all the salient features of the peoples whose remains had been unearthed, and whose existences were as so many landmarks in the evolution of man. He dealt fully with the characteristic types, Galley Hill skull, Gibraltar skull, &c., and when possible gave an imaginary description of the individual.

On the motion of the chairman a hearty vote of thanks was accorded to Mr. Lawrence for his paper, and also to Professor Reid for his kindness in supplying a large number of casts illustrating the various types.

## ORDINARY MEETING.

17TH MAY, 1912.

Professor REID, Hon. President, in the Chair.

At this meeting Dr. J. L. McIntyre read a very valuable and interesting paper on "Primitive Psychology and the 'Fairy Faith.'" At the close of the paper Professor Reid called upon Mr. A. Hunter Brown, President, who expressed to Dr. McIntyre the sincere appreciation and gratitude of the Society for his unique contribution to their records.

Dr. McIntyre was accorded a very hearty vote of thanks by the large number of members present.

## PRIMITIVE PSYCHOLOGY AND THE "FAIRY FAITH,"

by

J. L. MCINTYRE, M.A., D.Sc.,

Lecturer on Experimental Psychology, University of Aberdeen.

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It is obvious that a very large amount of inference and guesswork must go into the attempt to penetrate the life and customs, and still more the mentality from which the customs sprang, of our "primitive" ancestors. As McCulloch has said of Celtic paganism, in attempting to rebuild the structure of their beliefs, and to guess at the inner spirit, we are working in the twilight on a heap of fragments. Apart from the mere exercise of ingenuity, or simple curiosity, the reasons for the attempt are the same as underlie all the tendencies of our time to hark back to the beginnings of things. To know mind thoroughly, its possibilities, its dangers and favouring conditions, it is well to know first the stages through which it has actually passed in its upward progress. Again, evolution may be looked upon as a form of salvation to which not all are called; there exist to-day many tribes of men who have not, so far as we know, changed their customs and ways, for thousands of years, until quite recently perhaps, under the influence of the civilised white. They have still the primitive mind for which we seek. Even among the privileged, the elect races, many individuals fail from one cause or another to reach the general level, and remain at the stage of primitive man, so far as that is possible under civilised conditions. The study of the primitive mind may at least help us to understand these primitives among our contemporaries. There is a human type in mind as well as in body; man has possessed it from the time he began to exist as an animal with the specific characters he now has, by which he is distinguished from the higher apes, for example. It is on this type that all the embellishments of civilisation have been laid. The gains of culture are not inherited by one individual from another, they are *handed on* from older to younger, while the minds,

by which they are received, remain in their typical make-up the same from generation to generation. So at least biology seems to have decided. Hence the "primitive" mind is that with which each of us begins in life, over which we have been laying a sort of veneer from nursery to school, and from school to college.

The history of culture is that of the gradual massing of the materials, language, literature, customs, and institutions, from which the individual may draw his education, or not, according to his will and his capacity. It is not a history of any change, or at least any *appreciable* change in the *nature* of the mind itself; although as a result of it the *finished* mind, that of the educated man, becomes progressively more and more remote in many directions from its own starting point. But as we begin to assimilate those materials in our earliest years, we never have the *adult* primitive character, which, after all, is what we seek to know about. What this was we can only infer from a varied but scanty assortment of facts.

The sources of information about primitive man, man of the stone age are:—(I.) The remains which have been unearthed and are now available in museums, or, as with the "standing stones," &c., in the fields. These include (1) bones, especially skulls, the size or capacity of the latter and their shape indicating the relative or comparative intellectual powers; (2) the houses or temples, cave dwellings, barrows, mounds, menhirs, dolmens, &c.; (3) utensils, throwing light on the occupations—the hunting, household life, preparation of food, &c.; (4) ornaments—personal and other—decorated weapons, paintings or engravings on rocks, on bones, &c.; (5) from the refuse heaps comes information also as to the animals which were hunted for food or for their skins or as enemies to man; (6) the tombs or burial grounds with their indications of belief in a supernatural world. (II.) The myths, legends, superstitious observances and customs of all kinds which have been handed down from one generation to another to our own day; many of these have been proved to contain or to represent the beliefs of prehistoric man, and an analysis of some of them is what is attempted in this paper. (III.) The customs, institutions, myths, &c., of primitive men now living, such as the lower groups of savages in Ceylon, Australia, South America, and elsewhere.

The term "psychology" as applied to a particular person or group of persons may mean either (1) the views, theories, beliefs in general held by

that person or persons as to the nature of the mind, the soul, the spirit, its relation to the body, the existence and powers of disembodied spirits, of supernatural spirits, and the like; for example, the "psychology" of Maeterlinck. On the other hand the term may mean (2) *our* theory or view of the mental make-up of the person or persons to whom the term is applied, as when we speak of the psychology of childhood, or of genius. It is in the latter sense primarily that the word is used in this paper. At the same time since the most interesting feature of primitive life is the customs and habits which expressed, or, more strictly, were connected with, their beliefs about the nature of the soul and of life generally, we shall mainly deal with those mental qualities which gave rise to, or led up to the customs and beliefs about sickness, death, the other world, ghosts, fairies, and the relation of these to the ordinary world in which we live.

Our means of interpretation will necessarily be those common and universal tendencies of the human mind, which are present either actually or potentially in every healthy child at birth, in the Negro, the Australian, the Maori, the Malay, the Esquimaux, as in the British, French, or German native. All that separates the European or North American white from his black, red, or yellow neighbour is a product of culture, that is to say, something for which the capacity indeed is present at the beginning, in every mind, but which has to be built up anew by each individual, each generation, before it can take advantage of it. Nothing of all our British culture is transmitted through physical heredity, and a British child brought up from the beginning among Hottentots would not only have the Hottentot mind when it grew up but would no longer be capable of acquiring the British mind. It is not denied that there may be physical differences in the nervous system which made it impossible for a Negro ever to reach the same level of education or culture as the White American. That is an arguable point. It is denied only that there is anything in the white American child at birth which *represents* the white American culture, and which is *inherited* from the civilised parents or remoter ancestors.

Hence in trying to explain primitive beliefs we must appeal to the same powers by which the modern man acquires the beliefs of his parents and forms new ones for himself, *i.e.*, instinct, observation, suggestion, inference, working by slow changes on what is already in the mind. It is extremely

improbable, for example, that primitive man had a power of seeing or otherwise being aware of supernatural beings which the cultured man or the dweller in cities has lost. This would suppose not merely a change in the degree of power but also a difference in the *kind* of power possessed by the two minds. "These experiences of mine," says Dr. Wentz, "lead me to believe that the natural aspects of Celtic countries, much more than those of most non-Celtic countries impress man and awaken in him some unfamiliar part of himself—call it the sub-conscious self, the sub-liminal self, the ego, or what you will—which gives him an unusual power to know and to feel invisible or psychical influence. What is there for example in London, or Paris, or Berlin, or New York, to awaken the intuitive powers of man, that sub-consciousness deep-hidden in him, equal to the solitude of those magical environments of nature which the Celts enjoy and love?"

"Are city dwellers like these, nature's unnatural children, wearing out their lives in an unceasing struggle for wealth and power, social position, and even for bread, fit to judge nature's natural children who believe in fairies? Are they right in not believing in an invisible world which they cannot conceive, which, if it exists, they—even though they be scientists—are through environment and temperament alike incapable of knowing?"\* It is true that the unceasing struggle for life, or for wealth, blinds too much that might otherwise be visible, in the beauty of nature for example, but it cannot be supposed to have entirely quenched a source of knowledge such as this theory implies.

The general rules regarding the evolution of belief by which we shall be guided, are (1) that in the relation of customs to beliefs, and of both to myths, legends, and fairy tales, it is almost, if not quite, invariably true, that custom precedes the rest, that belief is subsequent to custom, and that legend and myth are interpretations of belief or of custom: legends and beliefs alike change more rapidly than the custom or ritual on which they are based; (2) customs arose in the course of the ordinary efforts of men to face the difficulties of their environment to secure food, shelter, clothing, for themselves and their families, to avoid enemies and natural dangers, such as storms on land or sea. When a given action proved successful in any one of these cases, the action itself being either instinctive or adopted in a series

\* "The Fairy-faith in Celtic countries": Oxford University Press, 1911. Introd. p. 20 and p. 27.

of tentative efforts, it was repeated under similar circumstances, until it became the normal reaction in such cases. The success, however, need not necessarily have been a *real* success; an apparent success, a "*post hoc*" was equally effective: for example, if the wise man of the tribe poured water upon a black stone in order to bring rain from the sky, and if rain actually did fall within a few hours or even days after it, this, of course, would count as a success, and the action would tend to be repeated in consequence.

A Psychology of primitive men would seek to trace beliefs and legends back to their customs, customs to their earliest and simplest forms, and then—the more purely psychological work—to refer the earliest form of the custom to the mental character from which it sprang. Thus many of the Greek and Roman gods and goddesses had as their symbols an animal of one kind or another—Jupiter the eagle, Demeter the pig or horse, Appollo the wolf, Minerva the owl. The later theory was that the animal had some relation to the favourite activity of the god, or that it played some important part in the god's relation to man, as Apollo was said to have freed the country from wolves. Earlier, the animal was the form of the god or goddess, the way in which he appeared to men; still earlier, in most cases at least, the animal itself was worshipped, not as a representation of divinity, or as a manifestation of divinity, but as a being of the same kind as man himself. The worship was a sign of respect, deprecating the wrath of the animal for its killing; otherwise it might influence its fellows to take revenge, or, as in the case of animals killed for food, the species might avoid the district altogether. Again, it might be a magical ceremony to increase the numbers of the animals; so the salmon, the hare, the pig, the bison, the deer, &c., were worshipped. The universal tendency is that the custom becomes refined and transformed in various ways by the coalescence with it of other customs, and the influence upon it of other beliefs; especially is this the case where one race has been conquered by a higher, more civilised race, as the Celtic conquered a pre-Celtic race in our own country. Nearly always the customs of the older race are partly at least adopted and fused with those of the new comers, losing in the process some of their crudeness and brutality.

A familiar instance of this refinement of customs is our modern harvest festival; the earliest festivals probably involved the sacrifice of a human being as a form of magical rite to secure the permanence of the life of the

corn and its reappearance after sowing,—at which period the festival was sometimes held; later the spirit of the corn was held to reside in some animal, perhaps an animal caught in the centre of the field, and later still the place of the animal was taken by the last sheaf of corn cut, or the last ears of corn. The last sheaf in Scotland is still called the “harvest maiden,” a term which points back, perhaps, to the original custom.

The same custom is probably the basis of the Greek myth of Demeter and Persephone.

In the same way the immolation of wives, slaves, horses, and dogs at the burial of a chief has been refined in different countries in different ways; in Japan and Egypt at an early date, pictures, images, or dolls were substituted for the persons themselves or the animals; in our own country, the horse of the soldier may still be led behind the bier to the grave of his master, but is no longer put to death. Again the primitive custom of setting out food for the dead, and supplying him with his property for use in the other world, has also in Egypt and elsewhere been lightened by the use of imitation food, imitation dishes, paper garments, and paper coins.

Let us take then as an example the beliefs in “fairies” in our own and other Celtic countries, and attempt to trace it back to the primitive habits out of which it arose, and to determine which of our familiar mental processes are to be held accountable for these beginnings.

In all the specially Celtic countries, Ireland, Scotland, Wales, the Isle of Man, Cornwall, and Brittany, the belief in fairies is universally found; not, of course, by any means so powerful as it was fifty or a hundred years ago, but still so strong that Dr. Wentz, in the year 1909, found people from all ranks, peasants, priests, protestant ministers, and scholars, who either claimed themselves to have seen the fairies, or asserted a firm conviction that a parent or other intimate had seen and talked with them. Numerous tales were obtained, evidently quite firmly believed in by the narrators, of changelings, of the taking away of young men and women to the fairy country, of tricks played upon men by fairies, of special gifts with which men were endowed by them.

The following is a summary of the evidence he presents:—As a rule the fairy is described as small, from one to two feet high, dressed in bright colours, the men in red and the women in green; but there are exceptional cases in Ireland where the fairies are pictured,—or a special race of them,—

as tall and noble-looking, of majestic appearance, always youthful; these were sometimes dressed in ancient Irish costumes. Their life is precisely as is the life of the people about them, or rather as it was in more primitive times; they delight in music, singing, dancing; they indulge like men in horse-riding and hunting, in war, and in festivals; in one case they were seen playing football, and in another it was a boat race in which they were competing with each other; in Scotland they are described as doing the ordinary household tasks of men and women, churning, working cloth, herding, and so on. Sometimes there is this peculiarity, that what in man would leave an obvious trace, with them leaves none. For example, they are described in a Welsh tale as slaughtering an ox, roasting it and eating it; but in the morning the ox was found whole and well. It was only when the fairies were interfered with that this "regeneration" of the animal did not take place, and it would be found dead in the morning. So a great battle is described in Ireland between the Munster and Connaught fairies; but after the noise and swirl of the battle all the hosts of both sides vanished, the dead and wounded as well as the survivors; and again in their hunting, although they ran with horses and dogs after the deer, no trace was left on the grass or the bog where their footsteps had been. In their relation to man, the most prominent feature is the kidnapping of human beings; all the Celtic countries speak of infants being taken by the fairies, who replace them by their own, sometimes by an old man, sometimes and more frequently by a deformed child, a hunchback for example; this is the "changeling." There are, however, ways of getting back the right child. For example, in the Isle of Man the changeling is put over the fire, or on a rock in the sea which is covered at high tide, or a burning peat is applied to its body; the supposition is that the fairy owner will not endure this suffering in its child and will take it away and bring back the other in its place; similar beliefs exist in Scotland and in Ireland. In the same way sick persons, especially those suffering from consumption, are frequently said to be with the fairies, and when they are cured, they are said to be returned from fairy land. Again there are numerous tales in all the countries of a bride or bridegroom being carried off, no substitute being provided in this case. If a man or woman interferes with a fairy, he or she is punished either by "ill-luck," by misfortunes of various kinds, the loss of the crop, the cows ceasing to give

milk, the milk ceasing to churn, &c. ; or the person himself may turn ill and die. A common form of interference, of which this punishment is the consequence, is to build on one of their passes or paths, or one of their mounds, or to drive a road through a fairy mound, &c.

There are various safeguards by which children and property may be protected from the fairies. One of the most universal of these is the sign of the Cross, made for example in Ireland on a cow after it is milked, or with lighted straw over the cradle of an infant ; again a live *coal* is put under the churn, iron tongs laid across the cradle ; and in one case a needle which had been used by accident (pins having run out), protected the third child of a couple whose two previous children had been taken by the fairies. In Scotland no child is regarded as safe until it is baptised ; before this time measures of some kind must be taken, *e.g.*, there is given to parent and child the milk of a cow which has eaten a certain plant (*Pinguicula*)\*.

Certain things must also be observed by men to keep the fairies in good humour and prevent them from spoiling the house or property of the humans. Thus, when milk is spilt it is to be left till the fairies come to take it ; the scrapings of the knife which has been used for preparing the butter after churning are theirs ; and in general any food which falls accidentally from the fingers must be left where it lies ; when a new house is taken it must be furnished and food prepared and left, and the people themselves must not enter the house until this food has been consumed and the place once more tidied up by the fairies. There are three days which are universally connected with the fairies, and which mark the height of their power. These are May day, either the present first of May, or the 12th of May, which is the old May day ; St. John's Night at midsummer ; and Halloween, the eve of the first of November. Thus, in Cornwall, after Halloween, blackberries are not fit to eat, it is said, because the pixies have been over them ; on the same day in Lewis libations of ale used to be made to Shony, a fairy being, who it seems was a sea-god ; on that eve all fairy bowers are said to be open, and battles take place between the fairy clans.

A common feature in all the fairy tales is the taboo. It is, for example, made the condition of a treasure being found, of which the fairy has indicated the existence, that the finder shall not look back, or shall not make the

\**Pinguicula* (butter-wort) is used for curdling milk in some parts of Scotland.

treasure known to another person; in the Isle of Man sprigs of rowan are cut on May eve, but neither steel nor iron must be used in cutting them—they are to be nailed up as crosses on the doors; again on this day no fire is to be given away; when a brownie or other fairy has done work for a human being, no payment must be offered; in numerous stories a garment is left for him, and is sometimes taken, but whether he takes it or not, he never returns; again the fairy wife of the tales must never be touched with iron or struck three times “without a cause;” and in Brittany no one who has been present at the fairies’ Sabbath or festival must tell of it afterwards.

The numbers seven and three and the period of “a Year and a Day” constantly recur as magic numbers and periods in the tales. Thus, the Enchanted Island off the coast of Ireland is seen only once in seven years; in Lough Gur a human being is drowned in the lake once in every seven years, being taken by the white lady of the lake, its fairy inhabitant; in Scotland it is said that a seventh son in a family is able to see the fairies, &c. Other magical observances or practices are common. For instance, it frequently happens that a man or woman taken by the fairies to their dwelling is warned not to put his finger into the water they use; he does so accidentally, and rubs his eyes with it; the result is that he can see fairies afterwards. In such a case the fairies remove the faculty by blowing on the eyes of the person, or by giving him a green leaf to put in his mouth, &c. In Scotland they can do all manner of magic—turn water into wine, a spider’s web into a tartan plaid, keep the meal-kist of one of their favourites perpetually filled, turn the cattle ill or well, &c., &c.

Apart from the special cases mentioned, the conditions of seeing fairies appear to be very varied. Some of the sick, for example, are said to see and speak with them. Again, at special places like the ancient monuments of New Grange and Dowth, places which, according to one reporter, are “naturally charged with psychical forces,” they are more visible than elsewhere. Anyone placing his foot on a fairy ring,—the ring of grass on which they are said to dance,—or touching a man whose foot is in the ring, will see them for the time; but generally speaking the reporters describe the effect of education as destroying the power to see this supernatural world, although not everyone gives the same reason for this supposed effect.

“ From haunted spring and grassy ring  
Troop goblin, elf, and fairy,  
And the kelpies must flit from their black bog-pit  
And the brownie must not tarry.”\*

For the most part they are described as incredibly numerous, as thick as the grass about us, filling every part of space, sea, and land alike; visible or invisible at will, although naturally invisible to us, able to change their appearance, to seem big or little, to take the form of a human, or of an animal, or of a tree; able to see everything, to see through solid walls and rocks; able to change other persons into animals and back again,—a cat, a horse, a deer, a toad, a snake, a salmon; able to cause storms, rain, wind, famine, and the like at will; able to foretell human events, death, sickness, &c.; able to interfere with human work or to help it, spinning, weaving, cleaning, threshing, and the rest.

Their dwelling is in the mounds and the old stone monuments, forests, hills, rocks; in the mountains; on the seashore; favourite places are old round towers, such as that of Dun-Osdale in Skye. For the Welsh, they occupy enchanted islands in the Irish Sea; and in Brittany, they inhabit the caverns and the grottoes on the hillsides and by the sea.

One universal characteristic of these tales is the curious lapse of time, or rather the shortness of the time, which a person who has been taken by the fairies imagines himself to spend; twenty years seem no more than a night or than a few hours. There is a story common to all the Celtic peoples of a man taken on his wedding day, living in fairyland for many generations, coming back thinking he has only been a few hours away, and finding that all the people he knew are dead, and that only one old woman in the neighbourhood still lives who remembers the wedding; in one extreme case what seems a few hours dancing, turns out to be an absence of 200 years.

As to the nature of the fairies, Wentz's reporters held widely different views. In the first place there was the common view that the fairies were spirits of the departed, especially those killed in war or murdered; their appointed time being thus violently anticipated, they must wander about the earth until the day of deliverance comes; during this period they may occasionally visit their relatives, and do so most frequently when misfortune

\*Quoted by a writer in Wentz.

is approaching, as the banshee comes to warn of approaching death. On the sea coast and by the lochs it is those who have been drowned that are supposed to become fairies.

Quite a different view is that the fairies represent a heavenly race, and in short are a special group of the fallen angels; those, namely, who, when the gates of heaven and of hell were simultaneously closed found themselves in the middle world between the two, and, consequently, had remained ever since about the earth, excluded both from heaven and from hell, although some of the kinder reporters seemed to hope that salvation would come for them at the end of time. The "fallen angels" theory is the most common in Scotland.

Many, however, of the spirits connected with the fairies, as the brownie and the kelpie, seem to represent spirits neither of the one class nor of the other, but reminiscences of the old nature gods. The certain part of all these beliefs is that the fairies are spirits, that they are immortal, relatively to man at least, that they are always youthful, that being spirits they can appear and disappear at will, and that in the main they are dangerous to man; hence the euphemistic names by which they are addressed or spoken of, the "good people," the "kind people," the "little people," the "fair people," and so on.

Why should this medley of fanciful superstitions be regarded as throwing light upon the primitive mind? The answer is that it has really come down from primitive times, the oldest histories, the oldest collections of tales of heroes or gods contain just such materials, whether in Patagonia, in the East, in Greece, in Russia, or in England and Scotland; perhaps in the Celtic tales there is more of romance, more of mystery than with other races, still the foundation is the same; beliefs in beings of an invisible other world, gifted with eternal youth, capable of interfering with and of being influenced by men, in whose world time goes for man at a miraculous rate, in human beings changed into animals, and in animals who are really gods ready to help or to injure man, these have been and still are world-wide.\* But we have not only the tales, we have also many customs; some in our own country slowly undergoing dissolution, but its remoter corners still living, and in backward parts vigorous and flourishing. These are the

\*See S. Hartland's "Science of Fairy Tales," and J. A. MacCulloch's "Childhood of Fiction."

customs connected with the great changes or turning points of the seasons—the turn of the year at the beginning of May, the Summer Solstice (St. John's Eve and Day at Midsummer), the turn of the year again at November 1st, and the winter solstice at Christmas; ceremonies and other customs at the start of the fishing season, the launching of a new boat, the "hanselling" of a new house, or suit of clothes, the initiation of a member of a club, a wedding, a funeral, any adventure in which the issue is uncertain.\* All the ways by which this issue is supposed to be either foreseen or influenced in Scotland, *e.g.*, the forms of good and bad luck, from meeting a cross-eyed man, to walking under a ladder, or spilling the salt,—these are found, or close analogues of them are found, all over the globe; the inference is that they belong, if not to the very root of the mind, at least to the lowest part of its stem; they represent some of the earliest reactions of the human mind upon its environment. Take, for example, the belief in the fairies themselves; apart from the theory which I suppose we must dismiss,—though Dr. Wentz adopts it,—that the fairy faith is *true*,—there are three views† as to how the fairies came to be believed in—the pygmy theory of MacRitchie, the pagan gods theory, and the animist theory.

To the first the fairies are a dim memory of a real people, a pygmy, or at least a small-sized race, like the Esquimaux, which once inhabited Britain and the neighbouring parts of the continent; they were conquered and driven into the recesses of the mountains by the Celts, lived on in the mound dwellings and in the caves, sometimes the slaves, always the enemies of the conquerors, but gradually dying out. They had magical practices at their festivals and hunting expeditions, and probably human sacrifices for which they would, like the Africans in a similar case, kidnap the children or young men and women of the conquerors, much as the Jews are occasionally accused of kidnapping Christian children for their supposed ritual sacrifice; somewhat on the same lines of this view is that which sees in the fairies a memory of the Druids, the priests of the pagan worship found in Britain when Cæsar landed.

The second theory has been more popular, that when Christianity came and conquered, the old pagan gods (who were innumerable, different

\*A well-known collection is "Brand's Observations on Popular Antiquities."

†See Wentz, *op. cit.* Introduction and Chapter III.

ones being worshipped at different places all over the Celtic area,—different names at least), were not immediately forgotten, but lingered on in the secret practices of the people, declining in size as the memory of them became fainter, until they reached the limit compatible with human form; taking at the same time a character that became more and more evil as time went on.

The third theory might perhaps be called an extension of the second. It is that the belief in the fairies is a Celtic form of a belief that is in its fundamentals universal to the human race, the belief that is usually called animism, viz., that whatever acts upon, influences, or in any way makes a difference to man is necessarily a living thing, or as a less primitive man would say, has a soul or spirit. Men did not at first distinguish soul from body, hence they spoke of the thing itself as alive, as speaking, as wishing, and thinking, whether it was a river or a rock, the wind, a tree, a star, or a salmon. When they did discover the soul or spirit, they thought of it as something inside the man, therefore as smaller than his body, going in and out at the mouth, the breath belonging to it, and speech also. If the fairies are spirits—the spirits of rocks, woods, wells, and rivers—then perhaps their smallness may have that explanation. But the *brownie* in Scotland and corresponding types of fairy in Cornwall, &c., suggest that many of the fairies were really household gods, and in the last resort, ancestors worshipped for their wisdom or their courage. This theory then is, that the fairy lore is the deposit of all the spirit beliefs and all the magical practices of the primitive Celts: ancestor-worship, worship of wells and rivers, of the sun and moon, the wind, the tree which gave them food, material for their houses, and shafts for their weapons. These beliefs in turn are based on their *practice* of sympathetic magic in the hunt, at the fishing, at initiation in warfare, and later in connection with domestic cattle and with the sowing and reaping of the grain. Among these practices, that of infanticide, and especially the exposure of weakly or deformed children was probably universal.\*

1. The animal-changes—fairy appearing as bird, fish, snake, or other animal; and, conversely, a fairy changing a human being for a time into a deer, an eel, a toad,—and generally the swan-maiden group of stories:

\*v. Reclus' "Primitive Folk." Of this practice the "changeling" stories are probably a deposit in our modern culture.

evidently this group traces back to totemism, the stage in which an animal was regarded as the ancestor of a family or tribal group, whose members were called by its name; marriage was forbidden between persons of the same totem name. The flesh of the animal was taboo to all members of the group except at solemn festivals when all tasted it to become imbued with the ancestral virtues. Later it seems to have been held that the spirit of the animal was reincarnated each generation in the head of the family or group.\* Totemism itself may have been founded on sympathetic magic. Thus in the simplest form of sympathetic magic a man imitates what he wishes to take place, he sprinkles water on a black stone, if he wishes to have rain; polishes a white or red stone, if he wishes the rain to cease and the sun to shine; shakes a branch of a tree, or makes the sound of rustling if he wishes the wind to blow; a tribe slays and buries a young man or woman, and acts as if he or she were reborn in the spring, a reincarnation of vigour, the whole being intended to imitate, and, therefore, to cause a prosperous harvest, following on the "burial" of the seed.† So primitive man would *play* at hunting before the real hunt began; one of the men would take the name and would imitate the cry, wear the feathers or the skin of the animal, and if his imitation was successful, he would find himself adopted as the regulation bear or bison or wolf of the tribal group; the name might cling to him and his family, and from the name would spring the idea of ancestry and kinship. The sense of kinship with animals in general can never have been remote from primitive man; he was too near to them both in his way of life and its conditions to feel exceptionally uppish towards them.

2. At Midsummer, on St. John's Eve the Beltane fires still flare from many a hilltop in Scotland; the Beltane bannocks are baked and lots drawn for the Beltane "carlin;" here also we have a permanent memory of the old Celtic or pre-Celtic "worship" of the sun, and the sympathetic magic from which the idea of a divinity in the sun may have been derived. The fire, the burning wheel which was rolled down the hillside, and the sacrifice of the one chosen by the lot of the cakes; all were intended to make the sun shine more vigorously, and provide an abundant store whether of game or

\*See Article on "Animals" in Hasting's Encyclopaedia of Religion and Philosophy. All the above beliefs and practices may not have been essential to "Totemism."

†See Frazer's "Golden Bough" for numerous examples.

of crop.\* Many of our children's games still perpetuate this old dreadful lottery. Midsummer Eve is still the time when the fairies are most powerful, when babes and young folk are most likely to be taken.

3. The supernatural lapse of time in fairyland, so far as it speaks of centuries, or even of years, must, as S. Hartland points out, be of comparatively late development, as primitive man could probably not count beyond ten; but the supposed extraordinary rapid flow of time may be explained perhaps by two classes of phenomena—the quickness with which time passes, during sleep or a trance, an ecstasy, intoxication, or an interesting activity such as dancing and hunting; and the repeated sacrifices from year to year of a being representing the god of corn, or the spirit of the corn, regarded as always youthful, and as being reborn each year, must have suggested the idea of a single individual living without change, over whose head therefore time passes without the marked effects that others experience. In the stories, for example, the man who comes back to the world after one or twenty or two hundred years is not changed in appearance from what he was when he entered fairyland, although the world about him has changed so enormously; in some of the more gruesome tales he crumbles to dust as soon as he has touched the earth, or committed some other tabooed action against which his deliverer had warned him.†

4. The conditions under which the fairies are visible, and the power they have of appearing to some persons and not to others, &c., may also be traced back to the customs of initiation on the one side, and of sacrifice on the other.

The whole class of beliefs in nature-spirits, in household gods, local and tribal gods, and the rest, has been variously traced to ideas of a double existence between body and soul, derived in their turn from experience of dreams, of visions of the dead, of shadows, reflections in water, and the like. But we must look behind these to the simple and mental processes which we all use constantly in the practical affairs of life—First, the principle of selection, or apperception, by which we see and hear only what interests us, only what has some practical importance for us; the result is that man views nature, at this early stage, as a duplicate of himself, he notices only

\*Frazer, *op. cit.*, Vol. III. (1900), p. 259.

†v. Hartland, *op. cit.*, chap. 9.

those trees, those rocks, those aspects of nature from which he suffers or which he uses to his advantage; he notices shapes of the hills and rocks only so far as they resemble a human form or some familiar animal, or have some "striking" features such as a sharp peak or jagged ridge. These phenomena, as the word "striking" suggests, come unsought to the mind, they leap into the experience, precisely as if they had some life and influence of their own; so the primitive man regards the rock of curious shape, or the river with its compelling sound, or the tree which drops its fruit at his feet, as a living and acting thing.

Any great and important discovery or invention or change of habit leaves its mark in the beliefs as well as in the customs of the people; consider, for example, the part which is played both in our fiction and in our science by the motor-car and the aeroplane. On primitive man the discovery of the way of making fire and light must have made an immense impression; so we have the wide-spread customs of the sacred fire; at the Beltane fire the original method of making fire by rubbing one piece of wood on another is still the sacramental practice in some places. In other cases, as the Vestal Virgin group of customs, the fire on the sacred hearth must not be allowed to die out. The domestication of cattle and of the horse have left their mark in the worship of the sacred bull or the sacred cow, and in the myth of the water-kelpie and other similar supernatural beings. Wells also had a vital importance in primitive life; hence the superstitions universally connected with them. Iron must have given an immediate advantage to its possessors over the men provided only with stone weapons, and must have correspondingly impressed the latter, and so we find iron as a protective charm over all the world. Salt, the personal name, writing, may be other instances.

A second law is that of association by contiguity; when two things have been experienced in close succession, the one tends to call up the other afterwards in the mind, so that having seen the one we tend to expect the other, and again when we merely think of the one in the mind, we also tend to think of the other. In primitive man, as still in the child, this succession of ideas, this tendency of one idea to call up another, is not referred to the mind as such but is referred to the things themselves, so that the rock, for example, which has attracted the attention, is regarded as the cause of the successful hunting that immediately followed; the thought of the rock tends

to call up that of the hunt, and in this way the rock is thought of as a being which in this particular case has been favourable to man.

The third principle is the law of association by similarity, of which we have found many instances in sympathetic magic; here the principle is that the thought of one thing may tend to call up that of some other thing which resembles it in some particular quality; thus the moon suggests a saucer or vice versa, and a glade in a wood suggests the aspect of a cathedral; by primitive man, again, as by the child, this connection is not regarded as a *mental* connection, but as a *real* connection, so that when two things do resemble each other (for the mind), it follows that they also *belong* together, and all that influences the one must also and at the same time influence the other. Of this we have still hundreds of instances; for example, in the superstition that if twins resemble each other then whatever happens to the one will also happen simultaneously to the other, however distant they may be; in omens, in ideas of luck, in the interpretation of dreams, we are constantly exercising this tendency. Again the tendency to exaggerate was as common in the youth of the race as in that of the individual: something gripped a man's interest and excluded other things from his mind; as it was in his mind so it was held to be in reality. This is the principle of realism, capable of wide application,—namely, that the primitive man does not distinguish between the process in the mind and the object, apart from the mind and acting upon it: between what he knows and how he knows. Everyone begins at this level; whatever comes to our mind is *therefore* real: criticism, distinction, recognition of error, these are discoveries of culture, and are not divinely given powers present from the first. What has a big place in a man's mind, for example, the chief of the clan or tribe, is regarded as a big thing; after the chief's death, when there is no longer the test of actual perception to apply, he is thought of as big physically as well as big in strength and power. "There were giants in those days."

The above suggestions are made only as an illustration,—an imperfect one,—of the way in which appeal must be made, in the last resort, to psychology, for an explanation of the origins of belief. It is not contended that the "primitive mind" was so simple a thing as the classical theory of Association assumes, still less that all its phenomena can be directly deduced from a few general laws.

## RECORD OF ANATOMICAL VARIATIONS.

Date of observation, 28th October, 1908.

Sex of subject, Male.

Side or region of subject, Right side.

*Abnormal Origin of Superior Profunda Artery.*

In this subject the superior profunda artery arises from the posterior circumflex instead of from the back part of the brachial artery. This abnormal superior profunda passes down the internal border of the external head of the triceps, enters the musculo-spiral groove and anastomosis in the usual manner at the elbow joint. This condition was not present in the opposite limb.

(Signature of observer)      ROBERT A. PRESSLIE.

Date of observation, 10th November, 1908.

Sex of subject, Male.

Side or region of subject, Right submaxillary region.

*Abnormal Hyoglossus Muscle.*

The hyoglossus muscle here is abnormal, in that its posterior part is inserted into the inner surface of the inferior maxillary band at a point just posterior to the origin of the mylo-hyoid. Into this band of fibres of the hyoglossus is inserted the styloglossus muscle, which in this case arises wholly from the stylo-mandibular ligament.

The stylohyoid and stylopharyngeus muscles are normal, but there is an additional band of muscular fibres arising from the styloid process, which passes obliquely down, joining the hyoglossus muscle at about its middle, and then sending down an aponeurosis to be attached to the lesser corner of the hyoid band. This band is separated from the stylopharyngeus by the glossopharyngeal nerve, and might, perhaps, be regarded as a superficial part of the stylopharyngeus muscle.

(Signature of observer)      HUGH ROSS SOUPER.

Date of observation, 17th November, 1908.

Sex of subject, Female.

*Abnormal Hepatic Artery.*

On isolating the contents of Glisson's capsule it was observed that there were two arteries running along the free margin of the gastro-hepatic omentum. One of these, the smaller, had the usual origin of the hepatic artery from the coeliac axis, giving off in the neighbourhood of the pylorus the gastro-duodenal artery. The continuation of the artery passed on between the two layers of the gastro-hepatic omentum, and after dividing into two entered the liver at the left extremity of the transverse fissure.

The abnormal branch arose from the superior mesenteric, and crossing over to the right behind the gastro-duodenal artery and behind the commencement of the portal vein ran along between the layers of the gastro-hepatic omentum in close relation with the common bile duct, and after giving off a cystic branch to the gall bladder entered the right extremity of the transverse fissure. It was several times larger than the normal artery.

(Signature of observer) R. R. M. PORTER.

Date of observation, 19th November, 1908.

Sex of subject, Female.

*Abnormal Tendon in Arm.*

There are present three abnormalities on the anterior surface of the upper extremity. One of the abnormalities consists of a fibrous tendon coming off the tendinous insertion of the pectoralis major, which running across the anterior surface of the arm in an oblique direction is inserted in the inner condyle of the humerus. In its path this fibrous tendon crosses the middle of the biceps, the brachial artery, the median nerve, the basilic vein and the inner vena comes.

The second abnormality concerns the position of the median nerve with the brachial artery. In a normal subject the median nerve lies at first to the outside of the brachial vessel and then crosses the latter anteriorly. In this case the median nerve lies to the outside of the brachial artery and then runs obliquely to the brachial artery but on the posterior surface of that artery.

The third abnormality consists of a thin slip of muscle coming off the lower half of the inner surface of the brachialis anticus muscle. This slip of muscle lies between the brachial artery and the median nerve, and is inserted by a thin tendon into the upper part of the pronator radii teres muscle.

(Signature of observer) J. JAFFÉ.

Date of observation, 20th November, 1903.

Sex of subject, Male.

*Abnormal Vascular Supply to Liver.*

From the coeliac axis came quite a small arterial branch coursing up in the normal fashion of the hepatic artery. This representative of the main trunk, instead of being intermediate in size between the gastric and splenic branches of the axis, was considerably smaller than either. It had the normal relations of the hepatic artery in the small omentum, running up to the transverse fissure on the left of the bile duct.

From the superior mesenteric artery, about an inch and a half from its origin in the aorta, there arose a fairly large branch a little more than a quarter of an inch in diameter at its commencement. It lay in relation with the splenic vein behind and further up with the inferior vena cava. Entering the small omentum it lay behind and between the bile duct and the portal vein, and entered the transverse fissure of the liver to the right of the first artery. It gave off branches to the right and left lobes and a small one to the gall bladder representing the cystic artery.

The branches of this artery were two small duodenal and pancreatic arteries, coming off at its commencement.

The splenic in this subject gave off what would represent the gastro duodenal artery shortly after its commencement, and this supplied the stomach, &c.

(Signature of observer) W. G. THOMSON.

Date of observation, 21st November, 1908.

Sex of subject, Male.

Side or region of subject, Right.

Number of subject, 2.

*Abnormal Branching of Brachial Artery.*

The brachial artery divides into two branches about the middle of the arm, and the branches pass under the bicipital fascia. Above the division

the median nerve lies external to the single trunk, but below the division it passes below the external trunk and lies between the two branches. Below the elbow the arteries pursue their normal course.

(Signature of observer) / GAVIN E. ARGO.

Date of observation, November 23rd, 1908.

Sex of subject, Male.

Side or region of subject, Upper Extremity.

*Abnormal Muscle in left Forearm.*

This muscle arises by a slender tendinous origin which blends with the tendinous insertion of the pronator radii teres. The tendon pierces the part of the flexor sublimis digitorum which rises from the oblique line of the radius. It terminates in a fleshy belly about three inches long, which is inserted into the outer side of the anterior annular ligament by a flat tendinous expansion about half an inch broad.

*Relations.*—At its insertion it lies between the tendons of the flexor carpi radialis and palmaris longus muscle, having the radial artery to the outside and the median nerve to the inside. Beneath it is the flexor longus pollicis. Above it lies behind the flexor carpi radialis and pierces the flexor sublimis digitorum to blend with the tendon of the pronator radii teres. This muscle was not present in the other arm.

*The Extensor Indicis* muscle in this arm is also peculiar in that it sends a tendinous slip to the middle finger, besides the usual tendon to the index finger. This slip arises from above the annular ligament.

(Signature of observer) IAN G. BISSET.

Date of observation, 23rd December, 1908.

Sex of subject, Male.

Side or region of subject, Right.

*A Secondary Astragalus.*

On removing the fat from the space between the front of the tendo achilles and the back of the astragalus a small nodule of bone resembling a sesamoid bone was seen. This, on closer examination, proved to be the tubercle which is situated on the postero inferior edge of the body of the

astragalus, and which, in this case, existed as a separate bone known as a secondary astragalus or os trigonum.

It was attached to the body of the astragalus by a ligament all round its edge.

The posterior fasciculus of the external lateral ligament was attached to the front part of the bone, which, however, did not assist in forming the groove for the flexor longus hallucis.

The bone was pyramidal in shape, with the base of the pyramid pointing upwards, forwards, and slightly inwards.

The surface was rough in appearance.

Its size was about that of a small pea.

This abnormality did not exist on the other limb.

(Signature of observer) ANTHONY J. MCCREADIE.

Date of observation, February, 1909.

Sex of subject, Female.

*Abnormal Acromion Process.*

The base of the acromion process ossified from the spine had a deep fibrous fissure in it, in the lowermost part of which one of the secondary centres had ossified close to the bone, but had not joined. The tip had ossified, but not joined, and between the two secondary centres was thick fibrous tissue with several small centres.

There was also an ossific plate in the capsular ligament of the shoulder-joint.

The whole acromion process had a quadrilateral appearance, and was large in proportion to the spine.

(Signature of observer) ELIZABETH G. BERNEAUD.

Date of observation, February, 1909.

Sex of subject, Female.

*Double Ureter.*

In a female abdomen a double ureter was found on the right side, while a single was present on the left. Each ureter was quite separate, both as regards origin from kidney and opening into bladder, but they ran close

together the whole way and had the same relations to the surrounding parts. They arose from the right kidney one above the other, while the line joining their bladder orifices was vertical in direction and rather under half an inch in length, the upper of these two openings corresponding with the one on the opposite side. The internal channel of the lower ureter was considerably narrower than that of either of the other two.

(Signature of observer)      FRANK GRIFFITH.

Date of observation, November, 1909.

Sex of subject, Male.

I.—(a) *Abnormal origin of dorsalis scapulae.*—The dorsalis scapulae artery of the right arm in this dissection came off the brachial artery, behind, and on the same level as the posterior circumflex artery—about  $1\frac{1}{4}$  in. below the middle subscapular.

(b) *High division of the brachial artery.*—The artery divided into two large branches—radial and ulnar—at the insertion of the coraco brachialis muscle. The radial branch lay anterior to the ulnar, and crossed over the latter about 3 in. above the base of the antecubital fossa.

The superior profunda artery was normal, but the inferior profunda came off the ulnar,  $\frac{1}{2}$  in. below the bifurcation of the brachial. The anastomotica magna artery came off the ulnar artery 2 in. below the inferior profunda.

II.—(a) *Abnormal insertion of extensor minimi digiti.*—The tendon of this muscle divided in its synovial sheath, under the annular ligament (post.) into two slips. One, normal, went to the base of the dorsal surface of the first phalynx of the first finger; the other, abnormal, was inserted into the dorsal surface of the first phalynx of the ring finger.

(b) *Flexor carpi ulnaris.*—The tendon of this muscle gave off a slip under the anterior annular ligament to blend with the sheath on the dorsal surface of the metacarpo-phalangeal joint of the little finger.

(c) *Third head to biceps muscle.*—A third head was found in this dissection, and has been described by the dissector of the left upper extremity, where a corresponding third head also existed.

(Signature of observer)      ROBERT S. SNOWIE.

Date of observation, 22nd November, 1909.

Age of subject, about 65.

Sex of subject, Male.

Side or region of subject, Right Axillary.

From latissimus dorsi a slip is given off. Its fibres run parallel to the course of the slip, its colour is similar to that of latissimus dorsi, except at its insertion, being there similar to the pale colour of the insertion of the coraco brachialis. This slip is broader at its origin, it measures 1 inch in breadth and tapers gradually towards its insertion, blending with the tendon of the coraco brachialis, which is inserted to the acromion process. The whole length of the slip from origin to insertion measures 3 inches, and its tendon measures 2 inches,  $1\frac{1}{2}$  of which runs with the tendon of coraco brachialis towards its insertion and has  $\frac{1}{2}$  inch of a tendon of its own.

(Signature of observer) DENIS J. V. PEREIRA.

Date of observation, 20th December, 1909.

Sex of subject, Male.

Side or region of subject, Both Sides.

*Accessory Head to Biceps Muscle.*

This accessory head arises from the upper part of the brachialis anticus, the origin being continuous with the fibres of insertion of the coraco-brachialis. This head passes down the arm and joins the common tendon of the biceps about two inches from its insertion into the radius. The abnormality is present on each side.

(Signature of observers) W. FOWLER.  
F. G. STUART.

Date of observation, 9th December, 1910.

Sex of subject, Male.

*Abnormal communication between Median and Ulnar Nerves.*

The abnormality consists of a slip given off from the median nerve, at the point where that nerve gives off the anterior interosseous. This slip passes downwards and inwards, between the flexor sublimis and flexor profundus digitorum, to unite with the ulnar nerve, being crossed in the latter part of its course by the ulnar artery.

(Signature of observers) EVAN A. MACKENZIE.  
DAVID FETTES.

Date of observation, 17th February, 1911.

Sex of subject, Male.

*Abnormal Origin of Vertebral Artery.*

Instead of rising from the first part of the subclavian artery, the vertebral rises from the arch of the aorta on the left side. It rises between the left common carotid and left subclavian arteries on a plane posterior to the carotid, and nearer it than the subclavian. It ascends almost to the carotid tubercle, and then follows its usual course. It is in relation with the L. vagus which overlaps it, and is adjacent to the phrenic. On its inner side are the oesophagus and thoracic duct, and to its outer side is the left pleura.

(Signature of observer) A. J. WILL.

*Flexor Accessorius.*

The outer head arose from about 4.5 cms. of the postero-external border of the fibula, the lowest point of attachment being about 7.5 cms. from the tip of the external malleolus. It also arose from the intermuscular septum between the peronei and the flexor muscles. The muscular fibres terminated in a tendon near the postero-inferior border of the lower end of the tibia. The tendon passed in the groove below the sustentaculum tali, was joined by the inner head near the antero-inferior border of the os calcis, and was inserted into the tendon of the flexor longus digitorum.

(Signature of observers) A. FARQUHAR.  
W. R. WATT.

Date of observation, 29th April, 1911.

Sex of subject, Male.

*Rectus Sternalis.*

It appears that the abnormality may be due either to a continuation down of the sterno-mastoid; or of the Rectus Abdominis up; but more probably the lowest fibres of the pectoralis major turn up instead of radiating across; and here they blend completely at the level of the second rib with the sterno-mastoid. If a nerve had been found in connection with it, it would have simplified matters, as it would then have been possible to place it. This abnormality seems to occur in a foetus with too small a head.

(Signature of observer) REGINALD V. COK.

Date of observation, 4th May, 1911.

Sex of subject, Female.

*Rectus Sternalis.*

The rectus sternalis is a long, thin, narrow muscle, situated at the upper and fore part of the chest. It arises from the anterior surface of the first piece of the sternum. The left rectus sternalis arises from the base of the sternal origin of the right sterno-mastoid, and its fibres run downwards and to the left. The muscle at its origin consists of aponeurotic fibres which interlace with those of the corresponding muscle of the right side. As the muscle descends the fibres become fleshy and the muscle itself narrower and more rounded. It is inserted by a tendon into the upper border of the cartilage of the fifth rib about  $1\frac{1}{2}$  inches from the mid-sternal line.

In the third intercostal space a nerve and an artery pierce the fibres of the pectoralis major, and enter the deep surface of the rectus sternalis. These are branches from the intercostal artery and nerve. In the second intercostal space a nerve and an artery pierce the pectoralis major on the inner side of the rectus sternalis, but instead of entering that muscle cross in front of it.

This muscle, during the whole of its course, lies superficial to and free from the pectoralis major, and has a separate sheath of its own. The muscle of the left side is smaller than and not so well developed as that of the right side.

(Signature of observer)      ROBERT FORGAN.

Date of observation, 7th May, 1911.

Sex of subject, Female.

*A Third Head to the Biceps Muscle.*

It is about a quarter of an inch broad, and arising above at the upper and outer part of the brachialis anticus is inserted into the bicipital fascia and inner side of the tendon of the biceps below. It lies on the outer side of the brachial artery above and above it below.

The musculo-cutaneous nerve does not in this case pierce the coraco-brachialis. The branches to the biceps and brachialis anticus are given off below the insertion of the coraco-brachialis.

(Signature of observer)      F. NORRIE.

Date of observation, 17th November, 1911.

Sex of subject, Male.

*Abnormal Origin of Spermatic Artery.*

In this subject the spermatic artery takes its origin from an accessory renal branch of the aorta to left kidney, instead of springing, as it usually does, from the aorta between the origins of the superior and inferior mesenteric arteries.

The accessory renal branch arises from the aorta about an inch below the renal artery and runs obliquely upwards and outwards to enter the kidney some distance below the hilum. The spermatic artery arises from this accessory renal about  $\frac{3}{4}$  in. from its commencement, meets the spermatic vein (proceeding to left renal vein), and runs down behind the iliac colon, crosses the ureter obliquely, and lower part of left external iliac artery to reach the internal abdominal ring, through which it passes, accompanying the other constituents of the spermatic cord to the scrotum.

(Signature of observer)      GEORGE GORDON BRUCE.

Date of observation, 30th November, 1911.

Sex of subject, Female.

Side or region of subject, Right upper Extremity.

Number of subject, 3.

*Vas Aberrans from Brachial Artery.*

In this subject the brachial artery presented certain abnormalities. About an inch below the superior profunda, a long vessel (vas aberrans) comes off, taking the place, to a great extent, of the inferior profunda, which is represented merely by a very slender vessel, coming off slightly lower down. This "vas aberrans" passes downwards along the outside of the basilic vein, sending off muscular branches to the biceps, and to the scapular and internal heads of the triceps. It crosses over the brachial artery and the median nerve about 2 inches above the elbow-joint, going under a slip from the tendon of the pectoralis major; then lies along the outer side of the brachial artery, passing with it under the bicipital fascia. At the lower side of the semilunar fascia, the two diverge: the vas aberrans lying to the inner side of the radial vein passing over the pronator radii teres, and joining the radial artery to the outer



The *Hepatic Artery* shows some abnormalities.

I.—Gastro-duodenal is a short thick trunk, arising near the commencement of the hepatic artery, and dividing into three parts.

(a) One passing down over pancreas to terminate in the accessory hepatic.

(b) Another to anastomose with asc. branches of accessory hepatic.

(c) A large branch, coursing to the right below and parallel to the hepatic, to terminate finally in it.

The Gastro-duod. does not give off the right gastro-epiplo.

II.—The pyloric and cystic branches are normal in direction and distribution, but the latter is of a smaller calibre than usual.

(Signature of observer) R. D. LAWRENCE.

Date of observation, October 23rd, 1912.

Age of subject, Senile.

Sex of subject, Male.

Side or region of subject, Left side of Chest.

Number of subject, No. 3 (winter session).

*Rectus Sternalis.*

Origin—Below manubrium of the sternum, opposite the second intercostal space. Muscle was  $\frac{1}{2}$  in. in width here, and its tendon continued for two-fifths of its whole length, which was 5 inches.

Insertion—In the sheath of the rectus, over the sixth rib, at a distance of two inches and a half from the sternum. The tendon was short at this end. The muscle did not lie in a straight line with the sterno-mastoid, but to the right, and less obliquely than it. No nerve supply was discernible and the fascia between it and the pectoralis was extremely thin. Muscle was not present on right side.

(Signature of observer) ARCHIBALD C. IRVINE.

Date of observation, 17th January, 1913.

Sex of subject, Male.

Side or region of subject, Right Abdomen.

Number of subject, 7.

*Accessory Renal Arteries.*

In this subject there was found to be three accessory renal arteries to the right kidney. Of these, two arose by a common trunk, from the abdominal aorta, above the main renal artery. The common trunk was about  $\frac{1}{4}$  inch long. These arteries passed behind the inferior vena cava and supplied the upper part of the kidney.

Another accessory renal artery arose below the main artery. It passed in front of the inferior vena cava and supplied the lower part of the kidney. The main artery divided up into branches and passed into the hilus of the kidney as usual.

There were also two renal veins. One came from the upper part of the hilum and the other from the lower part, and both passed into the inferior vena cava.

Date of observation, 6th May, 1913.

Age of subject, about 55.

Sex of subject, Male.

Side or region of subject, R. & L. Neck.

Number of subject, 3.

*Abnormal Omo-hyoid.*

In this case the omohyoid muscle was found to be in two distinct portions—an inferior portion and a superior. Both parts took origin from the upper border of the scapula beside the suprascapular notch by separate tendons.

The superior band blended with the sterno-hyoid muscle about  $\frac{3}{4}$ -inch below the body of the hyoid bone. The inferior band joined the sterno-hyoid muscle just below its middle point and was about twice as broad as the superior band. The tendinous intersection of the sterno-hyoid muscle was

continued across the fibres of the inferior band of the omohyoid. These abnormalities occurred on both sides of the neck.

(Signature of observers)      GEORGE R. McROBERT.  
    CHARLES SHEARER.  
    ALEXANDER G. LUMSDEN.

Date of observation, 30th October, 1913.  
 Sex of subject, Male.  
 Side or region of subject, Right upper Extremity.  
 Number of subject, 4.

*Axillary Arch.*

In this subject the axillary arch was found to be a muscular slip,  $2\frac{1}{2}$  inches long and about  $\frac{1}{2}$  inch broad. It extends from the upper edge of the latis-simus dorsi, and crosses the axilla in front of the axillary vessels and nerves to join by an aponeurosis the under surface of the tendon of the pectoralis major, the fascia over the biceps, and the attachment of the subscapularis to the lesser tuberosity.

(Signature of observers)      JAMES F. FRASER.  
    A. C. FOWLER.

Date of observation, 9th February, 1914.  
 Sex of subject, Male.  
 Side or region of subject, Abdomen.  
 Number of subject, 7.

*Abnormal Peritoneal Fold.*

From the back of the anterior abdominal wall a large loose fold of peritoneum extends. Following it from the right side, it leaves the abdominal wall and passes on over the right hypogastric artery, and urachus, continuing to the left hypogastric artery. It is folded round the last mentioned artery and comes into opposition with the above mentioned piece of peritoneum, extending back to the abdominal wall. Before they reach the abdominal wall the two layers separate enclosing a pyramidal space. From above downwards, the two layers leave the abdominal wall, come into opposition in the anterior, and enclose the arteries and urachus in the posterior part.

They continue downwards to the surface of the bladder where they become continuous with the peritoneum of that viscus. Inferiorly where this band of peritoneum joins that of the bladder, its breadth is about  $2\frac{1}{2}$  inches.

(Signature of observer) JAMES DUNCAN BROWN.

Date of observation, 3rd March, 1914.

Sex of subject, Female.

Side or region of subject, Right.

Number of Subject, 5.

The right kidney of this subject has two ureters, one of which emerges obliquely from the superior end of the hilum, while the other emerges obliquely from its inferior end. The former lies below the artery of the kidney but above the vein and behind both vessels, while the latter lies below and behind them. The two ureters are about one inch apart at the hilum, but they quickly approach one another. Each of them is about the size of a goose-quill in diameter. They descend obliquely inwards into the pelvis, where they are closely attached by their inner borders by connective tissue. In their course they lie a little behind and to the outside of the inferior vena cava, and are crossed obliquely from within outwards, by the ovarian vessels and the mesenteric vessels.

They pass obliquely inwards over the psoas muscle and at the first part of the sacrum cross the external iliac artery. They pass along the side of the neck of the uterus and upper part of the vagina. About one inch before they enter the bladder they unite to form one tube, which terminate in the bladder in the usual way.

The ureter of the left kidney is quite normal in its origin, course, relations, and termination.

(Signature of observer) T. D. WATT.

Date of observation, 9th May, 1914.

Sex of subject, Male.

Side or region of subject, Right.

Number of subject, 4.

*Abnormal Branching of Thyrocervical Trunk.*

Almost at its origin from the subclavian the thyrocervical trunk (thyroid

axis) gives off two small branches to the under surface of trapezius, and then divides into the inferior thyroid and transverse cervical (*transversa colli*). The transverse cervical gives off the ascending cervical close to its origin, and under trapezius divides into an ascending branch (*superficial cervical*) and a descending branch, transverse scapular (*suprascapular*).

(Signature of observers) G. S. ESCOFFERY.  
R. LOCKHART.

Date of observation, 22nd June, 1914.

Sex of subject, Male.

Side or region of subject, Left Thoracic region.

Number of subject, 4.

*Abnormal Intercostal Veins.*

In this subject the abnormality occurred in the arrangement of the left intercostal veins. The left inferior intercostal was formed by veins from the second, third, and fourth spaces. The vena azygos minor superior is absent, the veins which severally compose it going directly into the vena azygos major. The ninth intercostal vein, which usually goes into the vena azygos minor inferior, opens into the vena azygos major direct, which the vena azygos minor inferior receives the veins of only the tenth and eleventh spaces, before it enters the vena azygos major.

(Signature of observers) J. F. FRASER.  
A. C. FOWLER.

Date of observation, 22nd June, 1914.

Sex of subject, Male.

Number of subject, 4.

*Cleft Palate.*

The above is from a subject with a cleft soft palate. The hard palate is not cleft, but the soft is so for its whole length. Besides this the subject had abnormally large inferior meatuses.

(Signature of observer) CHARLES R. PHILIP.



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