The lower jaw (mandible) of the Anthropodonta, Grulla, is one bone in the adult by confluence at its symphysis. Each half is in all Quadrupeds, in the same form the usual horizontal and vertical position; it forms gradually augmenting in depth as they approach the latter where its breadth of the bone suddenly increases. The temporal part, according to some diverge from each other, forming a line touching and the outer side of the temper, in the sockets of the canine, are placed at an angle of the length of the jaw, in a straight line from the back part of the condyle to the front parts of the symphysis is 3 inches 5 lines. From the anterior side of the condyle to that of the other 5 inches 5 lines. The vertical extent of the incisor ramus from the summit of the condyle precisely to its inch 6 lines, the anterior part diameter of the same ramus is 2 inches 9 lines. The extent of the alveolar ridge from the last molar to the canine incisors 3 makes 1 line. The incisive alveoli are at right angles to the above and unite them together.
accept the upper part of the jaw. The number of the
above incisors of course is one of the teeth
described in a former memoir.

The socket of the canine is the largest of any in the mouth of the
mouth; its anterior and ventral portions are nearly
equal: that of the posterior premolars is much smaller.

None of the incisors is outstanding of all.
The symphyssis arises from the incisive alveoli,
downward and backward with a gentle convexity.

The incisors meet at the point, its exterior surface
is smooth and convex; slightly more prominent
near the middle of the base, but devoid of
vertical or transverse ridges or tubercules. There
are sharp elevations opposite the interdices of the socket
of the incisive alveolar tooth: the outer walls of these
socket are a little prominent, chiefly so in the canines,
and also where the posterior root of the first premolar is
implanted. A thin bony ridge of bone extends along
the outer side of the opening of the bony alveoli.

A shallow longitudinal channel
extends medianly above and in the incisive
of the bone without becoming convex towards the upper
border of the mouth to the prominent part of the
first premolar alveoli, a little near the lower
jaw. From the upper border of the bone to the premolar mentum,
it is oblique on the right side, the smaller division
being in advance of the chief division. Two or three small
ridges parallel to one another may be found.

There is no true canine alveolus near the canine border of the
jaw behind the beginning of the prefrontal bone. The canine
alveoli are united by a plate of bone which
This part extends farther beyond the alveoli of the last
alveolus, a strong ridge, continued from the back part of
that alveolus, inclines as it rises, toward the outer
edge.
ridge which it joins after it has surrounded its
front part of the castellated depression.
The lower curve of the concave papery part is to
lower border of the vertical commas by a gently
regular convex curve, without an angle. The
outer part of the curve from a low arched shock
ridge. The inner part presents four or five tubercules,
bound by intermediate concavities (P. 2).
The outer surface of this upper comma is nearly flat;
there is a felt middle line at a shallow depression
continuous to this. The middle border rises nearly
vertically and straight for two thirds of its extent,
then curves gently backwards to the summit of the
shoulder of Jersey. This summit is divided from the
comma by a deep and pretty regular concavity, formed
by the upper borders of the ascending commas which
terminate near the outer side of the comma.
The comma is nearly, but not quite, cut at top of
hemispheric, flat, larger and nearly the fore part
of it articulates surface terminates by a well defined
line or ridge, the lower part curves downward, is
nearly lost and the neck of the comma. There is
a deep prominence below the outer edge of
the comma; and a more extensive rough surface
below the inner and which overhangs the inner
commissures. The smooth broad convex ridge rising
which bounds the lower part of the castellated comma
terminates at the fore and inner part of the comma.
On the side of the synoglyphic present at the
lower part, part a rough oval shallow depression
terminates by a median vertical ridge, which terminates
in the rough commissure broader ridge bounding the
definition below. The inner surface of the
hemispheric
Integrated Romans is another; a small but slight denting marks the beginning of the same inner surface of the ascending ramus. This surface is divided by the ridge leading to the molar into an upper and lower part: the upper is nearly steep; the lower is perforated by the dental canal, from which hole a canal is continued downward & forwards. The hole is in the middle of the ascending ramus.

Compared with the mandible of the Human genus, even of the lowest variety, the Australopithecus, e.g., the chief distinction is the absence of the canine, which is as well marked in the black races as in the white mankind of the European breed. The entire jaw is much longer in proportion to the interincisal space than in Man; for Man's, though in European.

The parallel or elliptical curve of the alveolar arch (Fig. 3), with the pronounced dimpling of the pocket from the muscles & tendons, and the thin sharp wall between each alveolus, are also well-marked characteristics of the Human genus in this comparison.

Of the generally developed vertical ridge of the lateral pterygoid muscles, at the back part of the symphysis in the Human jaw, there is no trace in the Gorilla;

and the tubercles, sometimes developed in a transverse or three in number, jaw, at the back surface of the symphysis are likewise wanting in the Gorilla. The outer surface of the jaw beneath the outer branch or origin of the ascending ramus is more prominent in Man. As to the absence of the mental oblique ridge, attributed by some authorities to a normal character to the human jaw, the very frequent absence of any such ridge in the Human subject renders its absence in the jaws of the...
The prominent mental which is below the first premolar in the gorilla is level with second premolar in Man, as it is also in the chimpanzee and orang. The inner border of the second premolar shown more distinctly in the inner one in Man of the second premolar, this becomes orcula, and the border diminishes in vertical extent as it approaches the second premolar. This is contrary to the case in the gorilla. The buccal most prominent part of the premolar is nearest the middle of that point in Man. The premolar is on the same vertical line with the buccal part of the base of the second premolar in the gorilla. It is least from buccal in the premolar between the second and third premolar is relatively wider than in Man.

The inner wall of the mental alveoli overhangs the palatine part of the jaw more and more abruptly in Man than in the gorilla. The (internal oblique) premolar develops of the ridge extending from behind the buccal of the last molar forward of it and behind the first molar; a little further, is a characteristic of the human jaw as compared with that of the gorilla and other anthropoid apes. There is only a slightly complicated capsular joint behind the inner wall of the alveoli of the last two molars in the gorilla.

The premolar of the dentale eminence is relatively larger.
larger in the adult varieties of the former, than is the gibbon, and the inner boundary of the foramen is more produced. The external part is less deformed; it lies marked in men.

The condyle is more compressed from before backward in men; and its articulating surface is better defined.

The outer surface of the angle of the jaw has neither the tubercles nor vascular grooves present in some human jaws.

In comparison with the lower jaw of the Anthropoidea, that of the gibbon is chiefly distinguished by the convexity kept on account of its ascending ramus. The condyle part of the angle is less at tension in the Chimpanzee; that angle is consequently better marked, and both in this respect, and in the minor vertical extent of the horizontal rami, much below the last molar tooth, the Chimpanzee approaches nearer the human subject; though this difference seems to be due to the inferior strength as compared with the gibbon, are not particularly characteristic of them. The symphysis is accordingly relatively deeper in the Chimpanzee, and though being backward as it descends, it is rather more prominent at its lower part than in the gibbon. The mental foramen behind being placed below the first of the second premolar, is nearer
The lower border of the ramus being is
the zygoma, it is so firm that there is
no room.

The anterior internal ridge of the
ascending process is more behind, if more
distant from, the anterior external ridge
than in man; but it runs, without the
angular bend shown in the gorilla, to
the crest of the zygomatic process is relatively
shorter than in the gorilla. The ridge
continued from it marks the anterior internal
ridge of the condyle, (Burr, Mammal) that
is well marked in the old male chimpanzee.

The lower edge of the symphysis is almost
equal to that in the gorilla and shown
in pl. 4, p. 3, and is consequently
relatively shorter, compared with the length
of the jaw than in the gorilla.

The entry of the dental canal in nearer
the anterior internal ridge, and relatively
lower, in the chimpanzee than in the
Gorilla, which is in the most forward position
of that foramen more nearly approaches from
of the lower, and much part of the symphysis
than is a point bounded below by a transverse
crescentic ridge at backward continuation
of the under surface of the centrum.

The coronoid process, agrees with that in the
Gorilla in its shape and the backward curve
of its apex. The condyle resembles a triangle
that of the Gorilla, but the articular surface
does not extend so far downwards behind, and
is better defined there. In two lower jaws
of these adult specimens of Chimpanzee
the apexment of the ridge on the
more and back part of the rising curves is
the most developed as in the
fig. 5. The form of the posterior eminence
that curves on the spine in Monkeys (fig.
fig. 4. in the Gorilla, fig. 2. in the
Chimpanzee, fig. 5.

In the Chimpanzee (Pithecus longipes, and Chlorocebus
the first difference is the lower end and
somewhat curved process.

The more full elliptical form of the condyle
and the greater anterior-posterior breadth
of the upper development leaves origin
of the anterior-external ridge; and the
greater breadth of the temporal chamber;
from the anterior-external ridge. This
ridge lies straight to join the external one
at the face part of the coronoid process. 
Behind it the crest to flat depression is
deeper but narrower than in the Gorilla.
The external crest flat depression is also
better marked.

The Dentatus process by its relatively high
position in the Chimpanzee, correspone
closer with that in Men; behind and below
the mentalis process is nearer the lower
border of the jaw than in the Gorilla; it is
below the second and third teeth.

The mentalis is broader and flatter, help
projecting at its upper half; below this
it is very tridented as in the Gorilla.
There is a distinct prominence at its under part.
on each side of which a rough tent extends
outwards for nearly two inches.

A deep groove, below by a convex tent
of a ridge superimposed the inner and back part of
of its upper lip. A smooth narrow ledge extends
from behind the last alveolar groove down
on the floor or the internal oblique ridge in

The outer edges, rough edges on the inner side
of back part of the ascending process, with
intervening depressions, indicate the scope
attachment of the pterygoid, or in the bone.
The angle of the jaw is better marked
in the unarmed.

The alveolar part of the jaw is shorter
in proportion to the ramus in the
arms, and the bone characteristic of human
jaw is shown by the straightness of
parallelism of molar spaces.

In the lower jaw of a female specimen,
showing the anterior and posterior borders
of the ascending process are nearly
straight and parallel.
The vertebral column of the Gorilla is but one quarter curved, with the curvature increasing from the thoracic to the cervical spine, which is straight when extended. It differs also in the same uniform transverse diameter of the bodies of the lumbar dorsal and lumbar vertebrae, the latter not expanding in the same degree as they approach the sacrum as the cervical vertebrae do in the Human Subject. These general differences in the relative position and proportion of the spine and its parts are repeated, and are rather more strongly marked in the Chimpanzee and orang.

The comparison is modified, however, with the Australopithecus of the Romanoff species, a variety of which a skeleton of the bones, have not hitherto been described and figured.
The number of dorsal vertebrae, or those bearing movable ribs, is 13; that of the lumbar vertebrae 4; that of the sacral vertebrae 5; the total number of true vertebrae being the same as in Man, only the ribs which answer to the transverse processes of the first lumbar in Man retain their distinctness with a greater length.

Cervical Vertebrae.—Of the true vertebrae the cervical series departs most from the Human type in the extraordinary length of the spines of the last five vertebrae; that of the fourth cervical being not less than three inches and a half; those of the third and fifth are nearly of the same length, but are thicker, and have a slight curvature in opposite directions, away from the fourth, the third forwards and the fourth backwards, in a very slight degree; the spines of the sixth and seventh cervicales gradually decrease in length; and increase in thickness; the spine of the dentata is triradiated, the surfaces being divided by produced sharp ridges. The canal for the vertebral artery decreases in diameter from the sixth, forward to the atlas. The bodies of these vertebrae are longer in proportion to their breadth than in Man, and the lower (pleurophysial) part of the transverse process of the sixth is more suddenly increased in length and breadth, and diverges more from the upper division of the same process. The atlas is narrower than in Man, with a wider neural canal, especially between the condyles, which are smaller than in Man. An obtuse process is developed backwards from the part representing the body, which is broader than in Man; the perforation of the transverse process is smaller, and that process is narrower, especially vertically; the groove behind the upper articular processes is deeper and narrower. The axis or dentata differs chiefly in the greater size of the neural canal, and in the greater length and less breadth of the neural spine; the zygapophyses are smaller, the transverse processes are more directly perforated by the articular foramina, and the diapophyses are more produced, and more remote from the posterior zygapophyses. The foramen transversarium is more greatly inclined.

The bodies of the succeeding cervical vertebrae are longer in proportion to their breadth; the basis of the neurophysial ascends to embrace the hinder half of the antecedent vertebra as in Man. The difference observable in the dentata is manifested in excess in the third cervical vertebra, the spinous process of which more than doubles the vertical diameter of the rest of the vertebrae; the neural canal also exceeds that of Man in the same diameter; the zygapophyses are smaller than in Man; the neural canal is transversely elliptical, not circular; the transverse process is longer, more slender and more simple; the pleurophysial, not projecting distinctly from the diapophyseal part; the diapophysis is more remote from the zygapophysis; the neurophysial are much thicker and stronger; the long neural spine becomes subcompressed and slightly dilated at its extremity, which is not bifurcate. The same general differences, and especially the very striking one in the length of the neural spine, are manifested in the fourth cervical vertebra, but the pleurophysial part of the transverse process is now distinctly developed as a triangular depressed plate produced forwards and a little downwards; the lower part of the centrum is proportionally less than in Man, and the smaller size of the neurophysial is the more remarkable in contrast with the larger proportions of almost all the rest of the vertebrae. In the fifth cervical vertebra the zygapophyses equal in size those of the corresponding vertebra in Man; the pleurophysial part of the transverse process is less developed than is in the fourth; the neural canal is wider, the anterior and posterior zygapophyses are more nearly upon the same plane, and the neural arch has a greater antero-posterior extent; the superior thickness of the neurophysial above these processes is very striking; the neural canal of the transverse process increases in a greater degree in the Chimpanzees; the pleurophysial of that process diverges more from the diapophysis, broader and more produced than in Man; the zygapophyses are now larger in the Chimpanzees and Gorilla, but the centrum is still narrower; the neural spine is still very long and very strong, but is somewhat shorter than in the antecedent vertebrae.

The atlas of the Chimpanzee (Pithecanthropus Harmsi) differs in the same way for the Human type, but in a greater degree. Thus that of the atlas, the transverse diameter being still less in proportion to the antero-posterior diameter, and the transverse processes more developed and slender, the vertebrae are more elongated in length and breadth, the atlals of the Gorilla and Chimpanzee still longer and more slender, the vertebrae being more nearly upon the same plane, and the neural arch has a greater antero-posterior extent; the superior thickness of the neurophysial above these processes is very striking; the neural canal of the transverse process increases in a greater degree in the Chimpanzee; the pleurophysial of that process diverges more from the diapophysis, broader and more produced than in Man; the zygapophyses are now larger in the Chimpanzees and Gorilla, but the centrum is still narrower; the neural spine is still very long and very strong, but is somewhat shorter than in the antecedent vertebrae.
There is a short process from the brachial part of the hypopophysis, the vertebral articular processes of the left transverse process. These processes are perpendicular to the vertebral articular processes. In the small part of the hypopophysis and a long hypopophysis, the vertebral articular processes are represented by a small ridge representing the vertebral spines. In the umbilical region, there is an umbilical projection, which is extended to the general region.

The hypopophyses are not denuded of the umbilical portion of the umbilical region. The process of the umbilical region is often described by the umbilical portion of the umbilical region. The hypopophyses not denuded of the umbilical portion of the umbilical region are denuded of the umbilical portion of the umbilical region. The umbilical process of the umbilical region is elevated, and the umbilical process of the umbilical region is elevated.

The process of the umbilical region is denuded of the umbilical portion of the umbilical region. The process of the umbilical region is denuded of the umbilical portion of the umbilical region. The umbilical process of the umbilical region is elevated, and the umbilical process of the umbilical region is elevated.
The transverse processes are short and terminate simply and obtusely; the neural spine is triquet, having an anterior ridge and two terminal tuberosities directed outwards and a little backwards. The body is deeper behind in proportion to its breadth than in the Orang, and the vertical concavity equals the transverse convexity of that articual surface: the neural canal is less contracted above: the anterior zygophyses are larger and better defined. In all these respects the Chimpanzee approaches nearer to Man than the Orang does.

The third cervical vertebra

The fore part of the bases of the neurapophyses are produced forwards beyond the centrum and complete the transverse concavity for the reception of the backwardly produced body of the axis. This surface is deeper in proportion to its breadth than in the Orang, and in this respect approaches nearer to that of Man. The vertebral arterial foramina are larger, the neural canal wider, and the anterior zygophyses better defined, than in the Orang. The body of the vertebra is longer in proportion to its breadth than in the Orang, and the vertical concavity of the hinder surface is deeper. The costal portion of the transverse process is compressed and slightly produced downwards, forming an obtuse angle distinct from the more acute disphysis which is prolonged outwards and backwards. The neural spine is sub-triangular, slender, obtusely pointed, and of equal vertical extent with the neural canal.

The fourth cervical vertebra

This vertebra is in the greater depth and minor breadth of the body, and in the larger relative size of the neural canal and of the vertebral arterial foramina, repeats the same differences from that of the Orang, and the same resemblances to that in Man, as the foregoing vertebra does. The neurapophyses still form the sides of the anterior concavity of the body. The costal ridge is equally distinct; the disphysis is longer and the neural spine is a little longer than in the preceding vertebra.

The same differences as compared with the fifth cervical in the Orang are repeated in the vertebra of the Chimpanzee. The costal portion of the transverse process is more produced, the neural spine is both larger and longer. The disphysis is somewhat off.

The fifth cervical differs from the fourth in a slight increase of breadth and prominence of the neurapophyses. It is in a diminution of the disphysis: the centrum is more expanded posteriorly, the neural spine is longer and thicker than in the Orang, but in proportionally less developed than in the Orang. In

The seventh cervical vertebra

The costal portions of the transverse process are reduced to an osseous filament, which completes the lower boundary of the vertebral arterial canal. The disphysis is much longer and thicker than in the sixth. The transverse extent of the centrum continues to increase, as also the antero-posterior breadth of the neurapophyses. The neural spine increases in breadth and slightly in length.

In the atlas of the Malay Australian (pl. 155, figs. 6 & 9)
There is a tubercle from the hypophysis, representing the body, and a rough surface on the neural spine in place of a spine. The vertebral artery, forming the transverse process, traverses, and terminates on the neural arch behind the produced angles of the osseous hypophysis. The body is longer and deeper in proportion to its breadth than in the Chimpanzee. The surface for the odontoid is more nearly circular and better defined. The cavity for the condyle is relatively larger, deeper, with the margin more produced. The transverse process of the vertebral arterial foramen is much thicker than the diapophyseal base; they are equal in the Chimpanzee; the arterial foramina are relatively larger, and the posterior hypophyses are relatively much larger than in the Chimpanzee.

These differences chiefly relate to the more secure articulation and support of the vertically sustained head, and to the larger size of the cerebral organ in part nourished by the vertebral arteries in the Human species. The development of the hypophyses gives a greater antero-posterior extent to those parts of the atlas, and the transverse processes are thicker in proportion to their length.

The third cervical vertebra (p. 10) is the one parallel with the external occipital protuberance. The transverse process is thicker and more obtuse in proportion to its length: both the anterior and posterior hypophyses are relatively larger; the neural canal is relatively wider transversely: the neural spine is much less developed. In fact, what is usually described as the bifurcated spine of the axis seems rather to be the upper slightly produced extremities of the not completely canalized neurapophyses of that vertebra in Man.

Lines drawn parallel with the transverse plane of the anterior hypophyses would meet at a right angle in the Chimpanzee, but at a more oblique angle in Man, especially in the White races.

The fourth cervical vertebra (p. 11) is the one parallel with the external occipital protuberance. The transverse process forms a distinct obtuse angle from the diapophyseal part, which is shorter, thicker, and more obtuse than in the Chimpanzee. The same difference is here repeated in the greater relative size of the hypophyses, particularly the anterior ones. The transverse diameter of the neural canal is relatively greater. The neural spine is much shorter and thicker.

The fifth cervical vertebra (p. 12) is the one parallel with the external occipital protuberance. The posterior concavity of the body is less deep than in the Chimpanzee. The antero-posterior extent of the centrum is absolutely less and relatively much less in breadth. The costal portion is now more developed than the diapophyseal portion of the transverse process, which appears to form a short broad plate with the angles bent backwards. The hypophyses are relatively much larger than in the Chimpanzee: the antero-posterior extent of the neural arch is greater: the neural spine is much shorter, thicker, and less bifurcate. The anterior margin of the neural arch is sharper than in the Chimpanzee.
The sixth cervical vertebra

The human characteristics of this vertebra are shown in the greater relative increase in the size of the centrum, especially transversely, with the minor degree of the anterior concavity and posterior transverse convexity of the centrum. The pleurophysial parts of the transverse process are more produced outwards in proportion to the diaphysial parts. The spinous processes continue to present their characteristic superiority of size; and the neural spine, although here of greater length, is inferior in this respect to that in the Chimpanzee. The antero-posterior extent of the neural arch is greater in Man, and their interior borders sharper, than in the Gorilla or Chimpanzee.

The seventh cervical vertebra

The increase of breadth in the centrum, the increase of the antero-posterior extent of the neural arch, and in the length and thickness of the neural spine, is somewhat greater in this vertebra, as compared with the sixth cervical, than in the Chimpanzee. The costal part of the transverse process, completing the arterial foramen, is thicker than in the Chimpanzee: the diaphysis is shorter, but much thicker.

In both the human subject and the great anthropoid apes, the aspect of the articular surfaces of the zygapophyses, are, in the upper pair, upward and backward; the reverse is in the lower ones.

The metaphyseal tubercles, \( m \), are better marked in the last three cervical vertebrae of the Australopithecus than in the Gorilla.

The differences between the cervical vertebrae of the Australopithecus and the Gorilla, which are prominently exemplified in the figure of PL, especially in the contrast of the fifth cervical vertebra, \( p. 5 \), with that of gorilla, \( p. 17 \), and that of the seventh cervical vertebra, \( p. 6 \), with \( p. 11 \), gradually decrease as we pass from the first to the lower or succeeding dorsal vertebrae; \( p. 6 \).
The dorsal vertebrae besides their increase of number—the thirteenth however answering to the first lumbar in Man, with the pleurapophysis retained as distinct elements—differ in the greater length of the spines of the first five vertebrae, which progressively decrease to the length they present in the Human subject, but with greater thickness, and in the last three with greater postero-inferior extent. The bodies of the middle dorsal vertebrae are shorter in proportion to their breadth; the diapophyses are thicker, stand more directly outwards, and the costal surfaces are more concave and oblong; the metapophysis which projects distinctly in the eleventh vertebra in Man does not so appear until the twelfth in the Gorilla.

In the first dorsal the centrum is larger vertically, and the spine is twice the length of that in Man; the zygopophyses are larger than in Man; the costal surface is more produced in the side of the body; but the chief difference is in the position and direction of the diapophysis, which in the Gorilla projects directly outwards below the level of the anterior zygapophysis; the fore part of the base of the neurapophysis is less deeply grooved in the Gorilla.

The tenth dorsal (vertebrae of the Gorilla, pl. 16, figs. 3, 5, 71) is contracted in corresponding views with that of Man (figs. 4, 6, 78). The under surface of the body, c, is somewhat smaller in the Gorilla. The surface, f, f, for a better marked a slight depression as in the subject of the zygopophyses allows many the articular surface to be seen in fig. 3, b, 2. The greater depression in the direction of the diapophyses, d, is also well shown. The somewhat thicker diapophyses, and length of the spine are shown in fig. 5. b, b, that the more prominent upper zygapophyses in them are far more prominent upper zygapophyses in them all equal.

The same general differences may be noticed in the three succeeding dorsal vertebrae, except that the spine becomes shorter and the centrum larger in the Gorilla; the neural arch rises more abruptly beyond the anterior zygapophysis.

In the sixth dorsal vertebra the neural spine is reduced to the same length as the corresponding spine in Man; the centrum is larger, the neural canal of the same size, the posterior costal pits are longer, the diapophyses still stand out more transversely.

In the Chimpanzee the proportionate increase of the centrum is greater than in Man; the neural spine is less obliquely bent backwards, and is thicker antero-posterior, though not longer; the zygapophyses are more produced; the diapophyses are broader and somewhat shorter.

On the eleventh dorsal the neural spine is much increased at its extremity. The twelfth there are distinct and well developed metapophyses. The articulation from the upper part of the body of the spine is prolonged. The zygapophyses of this vertebra corresponds in this character with the eleventh of the Human subject. The neural spine is broader, and thicker, especially supero-posteriorly. There is but one costal surface on each side of the base of the neurapophyses. The diapophyses are reduced in size, the metapophyses equaling them.
In the last dorsal vertebra of the gorilla (p. 1.13) which corresponds to the first lumbar in Man, the chief difference is the articular surface, p., for the rib elements.

The increase in the size of the centrum is more in the antero-posterior than in the transverse diameter, and in the size of the spine it is more in the vertical diameter than in length.

The dorsal vertebra of the Chimpanzee accord very closely, except in size, with those of the gorilla, and manifest the same general distinctions from those of Man.

In the first dorsal...

The bases of the neural arches, instead of being produced downward, have those angles as it were truncated, to form the articulation with the heads of the first pair of ribs. The breadth of the centrum is augmented, and also, in a more especial degree, that of the diapophysis, which is excavated below for articulation with the tubercle of the rib. The neural spine is increased in antero-posterior extent, but not in length.

As that of the first cervical, it is consequently longer than in Man.

In the second dorsal the centrum is larger than in the first. The articular processes are more approximated to it, and the ribs' processes, which hardly appear at the base, the neural spine is somewhat longer than in the first dorsal.

In the third differs from the second dorsal in its narrower upper neural margination. In the fourth there is a decrease of the diapophyses, if longer neural spine. In the ninth dorsal the centrum presents a marked increase of its spine as it is thrown transversely and more expanded at its end.

In the tenth dorsal there is an increase in the spine of the body and of the neural spine; and the inferior articular surface is replaced by a more anterior tubercle. The surface is rounded and more marked in the corresponding vertebra of the gorilla, p. 1. p. 1. p.

In the twelfth dorsal the metapophysis projects distinctly upward from the first myapophysis, the last two dorsal, straight...

In its principal characters resembles the last dorsal of Man; for instance, in the distinct and well-developed metapophyses, which are thicker and longer in the Chimpanzee as well as in the narrower and longer trabecular part of the neural arch, concomitant with the change of position of the articular surfaces. The diapophysis still shows, in the Chimpanzee, an articular surface for the tubercle of the thirteenth rib. The neural spine is longer and larger than in Man, especially in its antero-posterior extent.
Although the Orang more resembles Men from their color with
the Orang and Chimpanzees in the number of dorsal vertebrae, of these characterized by movable rids, yet
the individual vertebrae do not differ so close
a similarity to the upper proding human tons as they do in the Chimpanzees. The spines of
the first and second dorsals are equally characterized
by their inferior length.

The spine of the third dorsal has
an anterior and posterior prominence; the succeeding spines gradually diminish in length,
but increase in breadth and anterior-posterior extent to the penultimate lumbar.

In the dorsal vertebrae of a half-grown Orang (Pithicus, Wurmbi) I have no noticed that the meta-zygapophysis
breaks its process from the anterior corner of the diapophysis of the seventh vertebra, progressively
increases in size in succeeding vertebrae, and
reach its maximum in position close to the upper zygapophysis
in the last dorsal. In the adult male skeleton
in the College of Surgeons, The metapophyaxis appears as a tubercle,
next to the base of the zygapophysis of the twelfth dorsal: it is equally distinct on
the first lumbar, but subsides to a slight eminence on the succeeding lumbar vertebrae. The
anapophysis is only distinguishable from the diapophysis upon the first lumbar vertebra,
where it serves to illustrate the true relation of the diapophysis of that vertebra to those
of the antecedent dorsals and the succeeding lumbar.

In comparing the last dorsal vertebrae with that of Men we may notice the smaller size of the body of
the Orang; and that the neural arch of the Orang is entire below
not notched.

In the Nepos and Australasian skeleton the body
The first dorsal vertebra

The body is relatively larger than in the Chimpanzee, particularly anteriorly; it is less convex below. The transverse processes are thicker and are more inclined upwards and foreward; the spinous process is thicker and relatively shorter, more inclined downwards.

The second dorsal vertebra

The centrum is increased in vertical and antero-posterior extent; the diapophyses are nearer to each other and are produced more than in the first dorsal, whereby the notch of the neural arch becomes deeper and narrower. The diapophyses are longer and thinner. The neural spine is also thinner, and the diapophyses are smaller. This vertebra differs from its homologue in the Chimpanzee in the more forward direction of the diapophyses and the more outward aspect of their articular surface.

The neural emargination of the neural arch is less deep; the neural spine is absolutely shorter and smaller. The body is relatively as absolutely large, and the pedicles of the neural arch are shorter and longer in conformity with the wider neural canal.

The third dorsal vertebra

The centrum differs from the second in a slight diminution in the transverse and increase in the vertical extent of the centrum; the diapophyses and neural spine are somewhat thicker; the neural emargination is narrower. It differs from that of the Chimpanzee in the minor length of the neural spine, the greater relative breadth of the centrum, the greater length of the pedicles and concomitant expase of the neural canal. The accessory tubercle is less distinctly developed upon the diapophysis.

The fourth dorsal vertebra

(The same general differences, in comparison with the Chimpanzee, are repeated in this vertebra with a greater development of the diapophysis and an increased size of the accessory tubercle.

The seventh dorsal vertebra

The progressive increase in the size of the centrum is greater, and the neural and posterior costal surfaces are less equal and less approximated than in the Chimpanzee.

The eighth dorsal vertebra

The neural spines of the and the preceding dorsal vertebra are shorter than in the Chimpanzee, are thicker transversely and less extended in the axis of the spine, especially at their extremities, which are tuberos, not truncate as in the Chimpanzee.

The ninth dorsal vertebra

The centrum is relatively larger, and the accessory tubercle above the diapophysis is more produced.

The tenth dorsal vertebra

The body chiefly differs from the preceding in the absence of the posterior costal surface on each side, as of the pig, which it approaches with...
with the tenth dorsal of the Chimpanzee to differ from that in the Gorilla.

The eleventh dorsal vertebral.

The metasternal tubercle which was slightly indicated in the preceding vertebra becomes more distinct. The centrum continues to increase in size.

The twelfth dorsal vertebral.

The centrum continues to enlarge, and the neural spine to gain in metasternal extent. The metastephs are well developed; the anapophyses may be recognized distinctly; the diapophyses are reduced to smooth tubercles without an articular facet. The neural arch of this vertebra contracts in breadth distally, concomitantly with the modified shape and direction of the posterior synapophyses, which are elongated and incline more obliquely outward than in the preceding vertebra. This modification does not characterize the corresponding vertebra in the Chimpanzee. The greater emargination of the neural arch is wider in the twelfth dorsal, which is distinguishable from the eleventh not only by this character, but by the distinctness and greater length of the metastephs, and by the greater length and minor breadth of the part of the neural arch supporting the posterior synapophyses.

Lucas vertebrae.

Those in the Gorilla and Chimpanzee are four in number, by reason of the retention of distinct or free pleurapophyses in the vertebrae answering to the first lumbar vertebrae. They are, also, in some respects, of both Gorilla and Chimpanzee, further reduced by the modification of the vertebrae answering to the last lumbar in them, by which it appears the characters of a sailboat vertebra.

In the full-grown but not in the Gorilla, compared by me the four lumbar vertebrae are distinct. They are figured in pl. 16 of this second volume.
Dumbar Vertebrae. The lumbar vertebrae have longer bodies in proportion to their heads than their spines. The metaphysis continues more distinct and prominent, it is more expanded at their extremity and in all but the last are blade-like, in the gorilla.

When naturally articulated together, they form a straight line, without any tendency to curvature forward, as in man; and the whole arch of these vertebrae, from one curved each, which it slightly curve in forward, especially in the lower region.

The chief differences between the normal lumbar vertebrae of the gorilla & Man are exemplified in the presence of the 2nd lumbar vertebra of the gorilla, p. 5 & 4, and if it presents the 3rd lumbar vertebra of an adult male of the centrum: the more inclination downward of the diaphysis of the more expanded posterior of the anterior sygapophysis, giving greater distinctness to the metaphysis.

In the first lumbar vertebra the metaphysis is still larger and distinct; the anterior sygapophysis becomes more convex and oblique in position; the diaphysis is suddenly elongated, as compared with that of the corresponding Human vertebra; the chief difference is seen in the smaller size of the neural canal which relates to the inferior development of the spine, and in the greater length and terminal expanse of the neural spine. The same difference obtains in the second lumbar vertebra; the diaphyses are broader and more depressed in the gorilla; the anterior sygapophyses are more convex in part, not wholly convex as in Man, a fossa divides them from the metaphysis; the centrum is as broad as in Man, but is deeper and longer; the neural spine extends more obliquely downwards, and its expanded apex is bifid. In the last lumbar vertebra, the difference is very striking; in the minor expanse of the centrum in the Gorilla, especially marked; in the much smaller and more depressed form of the neural canal, in the shorter and broader diaphysis, the more distinct metaphysis, in the convex anterior and more approximated posterior sygapophysis, and in the greater length of the centrum;
The first lumbar vertebra.

Of the perfectly adapted lumbar vertebrae, pp. 5, relate to the enlargement of the pectoral centre of the body of vertebra, to the characteristic curve of the body which it develops beyond the other vertebrae, and to the peculiar upright posture. The difference amounts to a greater length in the case of the gorilla than in the human lumbar vertebra.

The second lumbar vertebra.

The metapophyses from the red and outer part of the inferior zygapophyses, from which they are separated by a groove. There is a feeble rudiment of anapophysis from the back part of the long and depressed diapophysis.

The third lumbar vertebra.

In the lumbar vertebrae the diapophysis is shorter and thicker, and the anapophyseal tubercle is larger and more distinct at its back part. There is a slight increase in the size of the centrum. The neural canal which in the first lumbar vertebra is relatively narrower than in Man, becomes progressively more contracted as it approaches the sacrum. The fourth lumbar vertebra, has a deep diapophysis in the adult element, modified for articulation with the ischial bones. It functionally forms the beginning of the sacral series.

In proceeding with the examination of the diapophyses of the various vertebrae columns in the human and other primates, and comparing the Australian varieties of the human race with the present and all others to which the. In reference to the present circumstance we see that the lumbar vertebrae, 5 in number, pp. 21 are so arranged, when in their usual anatomical articulation as to form a slight curve with the convexity forwards; and among the length of the bodies, the five vertebrae do not exceed by more than half a vertebra the length of the four lumbar vertebrae in the gorilla.
The first lumbar vertebra (f. 21, fig. 2, 3) has it, -

The centrum is much increased in size, and the neural spine in extent. The metapophyses are also enlarged, but do not project so freely, by reason of the extension of the articular surfaces of the acetabular synapophyses upon the inner sides of their base. The diapophyses are much increased in length. The anapophysial tubercles are still distinct. The posterior half of the neural arch is more contracted than in the last dorsal, and the posterior synapophyses are turned directly outwards. The anterior direction is much less in the gorilla. -

The second lumbar vertebra (f. 22, fig. 2, 3)

It chiefly differs from the first by a slight increase in the size of the centrum and in the length of the diapophyses. The anter ior synapophyses are larger and look more directly forwards. Both metapophysial and anapophysial tubercles are distinct. This vertebra differs from its homologue, the first lumbar vertebra, of the Chimpanzee, in the greater size of the anapophysial neural arch, in the greater size of the synapophysial as compared with the diapophysial, and more especially in the greater size of the neural spine. The anapophysial tubercles are better developed in the Human vertebrae, and are situated at the upper, and not at the hinder part of the base of the diapophysis. The posterior production of the posterior synapophyses occasioning the deep flange emanation of the neural arch is also a characteristic distinction of the Human lumbar vertebrae.

The third lumbar vertebra (f. 23, fig. 2, 3, 5, 6, 7)

The metapophysial and anapophysial tubercles continue distinct on this vertebra. The posterior margin of the neural spine projects distinctly between two oblique ridges which diverge from the sides of that spine upon the posterior synapophyses, and thus affirm a marked distinction from the corresponding bone in the Chimpanzee. Besides the other differences pointed out in the preceding lumbar vertebra.

The fourth lumbar vertebra (f. 24, fig. 2, 4)

This shows, like the corresponding vertebra in the Chimpanzee, a decrease in the length of the diapophysis, but is likewise shows a marked diminution in the anterior posterior extent of the neural arch, occasioned principally by a diminished length and increased breadth of the posterior synapophysial. The anapophysial tubercles are distinctly developed. The body of the vertebra, though much broader, is not longer than that of its homologue, the third lumbar, in the Chimpanzee, and it is shorter than the corresponding vertebra in the gorilla.

The fifth lumbar vertebra (f. 25, fig. 2, 5)

It is characterized not only by its superior size, but by the great transverse expansion of the hinder part of the neural arch concomitant upon the superior development and outward extension of the posterior synapophyses. The diapophyses and neural spine are shortened; the anapophysial tubercles appear as a part of the upper border of the base of the diapophysis pinched up and produced backward. The metapophysial tubercles are separated by a groove from the anterior synapophyses.

As we ascend from the thoracic or contract regions of the vertebral column, the differences from the Human upper become marked of the specific peculiarities of the life become more marked.

Even the differences, if once begun, be more clearly indicated in the superior thoracae of the vertebrae where we come to the specimen which has induced us to contrast that one in a specimen with the specimen of a construction of itself the same age dated 1807.
The sacrum, in the Human type, consists of five ankylosed vertebrae, but in the Chimpanzee, the two middle ones, from a weaker ridge with only one spinous process, are in the case of Man, and the fourth and fifth vertebrae, it is longer. The posterior outlets of the sacrum are very small, and the whole neural canal is much more contracted.

The neural arch is complete in each, and the spinae processus is developed from all but the last, the four posterior spines being confluent. The metapophyses are developed from the four anterior sacras; the three anterior ones join the iliac bones.

The characteristic peculiarities of the first sacral vertebra in Man, e.g., the greater inclination of the spinal canal (2),; the larger spacious cavity in the anterior direction, of the transverse surface of the central spine, i.e., the greater length of the centrum; the anterior processes (in the iliac bones are shown in figures 27, 6, 28).
outlets of the nervous canals are very small, and the whole neural canal is much more contracted.

Section of the

The neural arch is complete in each, and the spinous process is developed from all but the last, the four posterior spines being confluent. The metapophysis are developed from the four anterior sacral; the three anterior ones join the iliac bones.

The neural arch of the last two sacral vertebrae is incomplete.

The neural arch of the male chimpanzee, figured in pl. fig. 5 and 6. The sacrum consists of five ankylosed vertebrae. They differ from the sacral vertebrae of the chimpanzee by their greater breadth and by their anterior concavity both lengthwise and transversely. The neural foramina are relatively much larger; the spinous processes are shorter and thicker. The two anterior sacra and a small part of the third form the sacra-

The neural arch of the last two sacral vertebrae is incomplete.

On both the gorilla and chimpanzee the deepness of the last sacral vertebrae (5, 6) terminates in an obtuse angle divided by a notch from the back side of the body of the vertebra, above which they are continued lower off in the chimpanzee than in the gorilla.

In man they divide gradually after the apex of the last sacral vertebrae.

In the anthropoid apes, as in man, the tail is reduced to three more or less flattened vertebrae, which being usually ankylosed together are the human abdomen from the bone called 'coccyx.' This is 0.5 to 6.2 cent.
And broader not to base in Man than in the
Gorilla or Chimpanzee (p. 3, c. 3, c.). In
these our instances the first cervical vertebra is
nearly the last dorsal vertebra; and you
like it, and in p. 71, pl. 7, of the esquimaux, c. 3, is
nearly the last vertebra.

As the question of the degree of variety to which
the portion of the skeleton described & compared
in the foregoing pages may be subject in the
human species, is one of much interest in
the present actual state of Organic Philosophy.
The following results of comparisons of
the male English (Bone),
and Skeleton of a Male Eskimo, and of a
well formed European (Bruhmon) may not
be unacceptable.

Vertebra.
Vertebral of a male adult Javanese compared with those of an adult male Australian.

The axis.

This is larger, has larger sygapophyses, and the under part of the centrum less compressed, than in the Australian. In both the neural spine is broad transversely, with its angles bent back.

The third cervical vertebra.

The posterior sygapophyses are larger, the diapophyses thicker and more produced, and the canal for the vertebral artery wider, than in the Australian.

The fourth cervical vertebra.

The vertical diameter of the centrum is much greater than in the Australian.

The first dorsal vertebra.

It differs chiefly in its longer and stronger proportions from that of the Australian.

The second to the sixth dorsal vertebrae.

The parapophysis (or articular surface for the head of the rib) increases in size and distinctness from the fourth to the sixth. These vertebrae differ chiefly from those of the Australian by the relatively greater size of the centrum and the stronger processes.

The seventh to the tenth dorsal vertebrae.

They differ chiefly in their relatively larger centrum from those of the Australian.

The eleventh dorsal vertebra.

It has a single surface for the head of the rib on each side, which has ascended from the body upon the neurapophysis. The diapophysis is very short and obtuse: a metapophysis of greater length extends from its upper and back part towards the sygapophysis. There is a short anapophysis.

The twelfth dorsal vertebra.

The costal surface has now wholly passed upon the extremity of the short and thick diapophysis; the metapophysis and anapophysis are distinct from this.

As compared with the twelfth dorsal of the Australian, besides a considerable inferiority of size, the costal surface is on the side of the neurapophysis, and has not ascended upon the tubercle which represents the diapophysis, as in No. 5204.

The first lumbar vertebra.

The anapophysis and metapophysis have subsided to tubercles, and the diapophysis is elongated by the extension of ossification into the fibro-cartilaginous basis of the pleurapophysis.

In the Australian the metapophysis is relatively longer, the diapophysis smaller, and the tubercles on the back of the posterior sygapophyses are less developed.

The second lumbar vertebra.

The third lumbar vertebra.

The upper part of the neural arch has been, probably after fracture, moveably articulated with its piers or bases. The anapophyses are well developed.
The fourth lumbar vertebra.

That of the Australian differs in its much shorter diapophyses.

The fifth lumbar vertebra.

The shortened and much thickened diapophyses present an articular surface for the produced angles of the sacrum.

The sacrum.

It is larger and broader in proportion to its length than in the Australian (No. 5210); it is also more concave anteriorly. The neural arch is left open and incomplete in all the vertebrae, whilst in the Australian the neural arch of each of the three anterior neural vertebrae is completed and supports a spine.

The atlas.

Compared with that of the Australian (No. 5186), the zygapophyses are smaller, the diapophyses are larger, and the sub-bifurcate neural spine is better developed. The canals for the vertebral arteries are larger, and they perforate the neural arch as well as the transverse process. The neural arch is likewise perforated by the first spinal nerve. The characters of age are manifested by the irregular ossification extending from the periphery of the odontoid articular surface.

The axis.

The diapophyses here are smaller, the bifid spine longer, and the transverse processes more widely perforated and more produced, than in the Australian (No. 5187).

The third cervical vertebra.

This also, repeats the differences of the smaller zygapophyses, the larger articular canals, and, the spine being bifid, with the two divisions well produced.

The fourth cervical vertebra.

The fifth cervical vertebra.

The same differences are repeated in both these vertebrae as compared with those of the Australian.

The sixth cervical vertebra.

The body is proportionally larger and the costal part of the transverse process more produced than in the Australian. As an individual peculiarity, the neural arch and spine are slightly distorted towards the right side, and the vertebral arterial canal of the same side is contracted and divided by a transverse bony bar.

The seventh cervical vertebra.

Both transverse processes are perforated. All the foregoing vertebrae to the axis inclusive show characters of age by irregular ossifications extending into the anterior vertebral ligament.

The first dorsal vertebra.

The inequality of size in the zygapophyses is here less. The diapophyses are longer and stand more outwards, and the centrum is larger than in the Australian Negro.

The sixth dorsal vertebra.

In each of the preceding the diapophyses are less bent upwards than in the Australian.
The metapophyses are distinctly developed from the upper part of the base of the diapophyses of the eleventh vertebra.

The twelfth dorsal vertebra.

It is larger than in the Australian, has the neural spine more extended in the direction of the axis of the body, has a larger costal surface, and shows the anapophysis more distinct from the rudimental diapophysis.

The first lumbar vertebra.

In this the metapophyses, anapophyses and diapophyses are more produced and distinct than in the Australian. Although the vertebra is larger than in the Australian, the zygapophyses continue to be absolutely as well as relatively less.

The second lumbar vertebra.

Although the anterior zygapophyses in their change of position have ascended to the base of the metapophyses, both these and the anapophyses continue to be distinct from the progressively increasing diapophyses.

The third lumbar vertebra.

Here both metapophyses and anapophyses have subsided to tubercles. The zygapophyses equal those in the Australian, and the diapophyses are of the same length, but the body and neural spine of the vertebra are much larger.

The fourth lumbar vertebra.

This is individually remarkable for the osseous growths which have extended from the under part of its centrum into the ligamentous sheaths underlapping the contiguous vertebrae before and behind.

The last lumbar vertebra, showing in a minor degree the same characteristics of age.

The sacrum, with the first coccygeal vertebra ancylosed.

It is relatively broader, especially across the third vertebra, and is less concave than in the Australian. The neural arch is completed over the first four vertebrae.

Vertebrae of an adult male Brachman, compared with

It is larger, particularly in the transverse diameter, than that of the Esquimaux or the Australian. As compared with the latter, the zygapophyses and arterial foramina are proportionally larger. The diapophyses are broader and less obliquely twisted.

The axis.

With the same superiority of size, it differs from that of the Esquimaux in the more backward inclination of the transverse processes and the deeper notch between these and the posterior zygapophyses. The spine is not so broad, but is higher. The notch between the postzygapophysis and diapophysis is less deep in the Australian than in the Esquimaux.

The third cervical vertebra.

In this, the character of the deeper notch between the zygapophysis and diapophysis is repeated. The spine is longer and more slender.

The fourth cervical vertebra.

The notch between the diapophysis and zygapophysis is wider than in the Esquimaux and deeper than in the Australian. The spine is longer, and, as in the preceding vertebrae, is unassymetrically bifurate.
The seventh cervical vertebra.

This shows a marked superiority of size over that of the Esquimaux, and still more so over that of the Australian. The diapophyses are thicker and more produced; both, but especially the right, are perforated by smaller foramina than those of the preceding cervical vertebra. Besides the increase of size, this vertebra differs from the preceding in the minor depth of the anterior articular surface of the centrum, in the increase of that part transversely, and the absence of any prominent plate from the costal part of the transverse process which now forms simply the lower boundary of the articular foramen; in the greater length, breadth and thickness of the diapophyseal part of the same process; and in the greater length and thickness of the spine, which terminates in an obtuse enlargement notched behind but not bifurcate. The posterior zygapophyses are also relatively larger.

The first dorsal vertebra.

The diapophyses are longer, and less inclined upwards than in the Esquimaux or Australian, and the aspect of the costal surface upon them is more directly downwards. In the Australian it looks more outwards than in the Esquimaux. The ridge along the lower part of the same process, here strongly developed, is feebly marked in the Esquimaux and is not present in the Australian. The produced parts of the border of the anterior articular surface of the centrum formed by the neurapophyses are more restricted to the upper and outer parts than in the preceding vertebra.

The second to the tenth dorsal vertebrae inclusive.

In each of these the aspect of the costal surface of the diapophysis is more directly downwards than in either the Esquimaux or Australian.

The eleventh dorsal vertebra.

This vertebra is characterized, as in the Esquimaux and Australian, by the development of well-marked metastyles on the upper and lower parts of the diapophyses, which are shorter and less thick than in the foregoing vertebrae. The surface for the head of the rib has passed upon the side of the neural arch. This differs from the preceding vertebra in the distinct development of the metaphyses, in the diminished size of the diapophyseal, which now cease to show the well-defined articular surface, and in the diminished length with increased thickness of the spine.

The twelfth dorsal vertebra.

This differs from that of the Esquimaux in the articular surface for the rib being still confined to the side of the base of the neurapophysis and not transferred to the diapophysis, which is short and obtusely pointed. The neural spine has a less antero-posterior extent, and a more expanded summit. This vertebra differs from the eleventh dorsal in the superaddition of small but distinct anapophyses, in the increase of the metaphyses and diminution of the diapophyses. The posterior zygapophyses are smaller, and are convex, instead of flat or slightly concave, surfaces; and those surfaces are turned more obliquely outwards. The hinder half of the neural arch is narrower.

The first lumbar vertebra.

This differs from that of the Esquimaux in having the metaphysial tubercles larger and the anapophyseal ones smaller; the diapophyses are shorter, but broader; the neural canal is wider in proportion to the size of the centrum. As compared with that of the Australian, besides the general superiority of size, the difference is chiefly marked in the much longer and larger diapophysis of the Frenchman's vertebra. As compared with the last dorsal vertebra, besides the usual difference of absence of the costal articular surface may be noted the diminution of the metaphyses and its approximation to the anterior zygapophysis, which has now a concave surface directed obliquely upwards and inwards. The two tubercles, which terminate the posterior ridge of the neural spine below in the tenth, eleventh and twelfth dorsal vertebrae, are here further apart and advanced upon the back part of the posterior zygapophyses.

The second lumbar vertebra.

The transverse processes of this vertebra are relatively longer than in the Australian, and the spine is higher in proportion to its antero-posterior extent. The tubercles behind the posterior zygapophyses are more distinctly developed. The anapophyses have subsided to mere ridges.
The third lumbar vertebra.

That of the Esquimaux differs from it chiefly in the retention of the anapophyses. The xypagophyses are less widely apart in the Esquimaux. The distance between the xypagophyses in each pair is the same in the Australian as in the European, although the vertebra itself is smaller in the Australian.

The fourth lumbar vertebra.

The xypagophyses are relatively larger than in the Esquimaux, and the whole neural arch with its processes are larger in proportion to the centrum than in the Australian; the spine more particularly is longer. This vertebra differs from the foregoing in the reappearance of the anapophysis upon the back part of the base of the diapophysis. Three ridges radiate from it; one to the diapophysis, another to the anterior xypagophysis, a third to the side of the neural arch.

The fifth lumbar vertebra.

The posterior xypagophyses are larger and wider apart than in the Esquimaux, and are larger but not wider apart than in the Australian; the spine is longer than in either of those varieties: the diapophyses are much thicker than in the Australian. The fifth differs from the fourth lumbar vertebra chiefly in the shortening and thickening of the diapophyses, at the back part of which the anapophyses are reduced to tubercles. The metapophyses now appear as simple thickenings upon the upper border of the anterior xypagophyses. The posterior xypagophyses are larger; their articular surface is concave, and looks more directly downwards. The neural spine is reduced, particularly in antero-posterior extent.

The sacrum.

It consists of six ankylosed vertebrae, the supplemental one being at the caudal extremity of the bone. The first vertebra of the coccyx, has nevertheless its usual size and shape; the sacrum is consequently longer in proportion to its breadth than in the Esquimaux, and larger in all dimensions, with a deeper anterior concavity, than in the Australian. The so-called transverse processes of the first sacral vertebra slope more downwards from the anterior articular surface of the centrum than in the Esquimaux, the direction being more like that in the Australian. The anterior xypagophyses also resemble those of the Australian in being larger and more sessile than in the Esquimaux, and the tuberosity which extends outwards and forwards from their base is much less produced than in the Esquimaux. The articular surface for the ilium terminates on the same transverse line with the third sacral foramen, as in the Australian. In the Esquimaux it extends very little beyond the second sacral foramen. In the present sacrum the neural arch is completed over four vertebrae and supports a spine: in the last two sacral vertebrae the neurapophysis coalesces with its homotype of the contiguous vertebra, but not with its fellow in the same vertebra.

All the differences above noted, after a somewhat detached comparison of the bones of the different varieties of the human race, are much less great and even reduced in importance to the appearance of destruction established in the general comparison between the Australian, or most lowest variety, and that of the highest of the ape tribe.
Plate

Mandible of lower jaws

Fig. 1. Side view of the lower jaw of the Gorilla (Pongo troglodytes)

2. B. of an (Australian) Gorilla.

3. The upper view of the lower jaw and teeth of do.


Plate

Fig. 1. Upper view of the lower jaw and teeth of the Gorilla.

2. Back view of the ascending ramus of the lower jaw of do.

3. Upper view of the lower jaw and teeth of the (an adult male Chimpanzee (Pongo troglodytes subpers).

4. The grinding surface of the molar series of the right side of the jaw of an adult male Chimpanzee.

5. Back view of the ascending ramus of the lower jaw of the Chimpanzee.

In all the figures I signify the canine; p. 36 p. 4 the premolars, indication of their homologv with the third of fourth of the typical series as shown in the hog; a m1, m2, or m3, the first, second and third true molars.
Plate
Cervical vertebrae

No. 1. The seventh cervical vertebra of the gorilla. (Cerplommyx gorilla)
(a part of the spine is indicated on outline)
2. Upper view of the atlas of the gorilla
3. Under view of the atlas of the gorilla
4. Under view of the axis of the gorilla
5. Under view of the fourth cervical vertebra of the gorilla
6. Upper view of the fifth cervical vertebra of the gorilla
7. The cervical vertebrae of an adult male Negro.
8. Upper view of the atlas of the gorilla
9. Under view of the atlas of the gorilla
10. Under view of the axis of the gorilla
11. Upper view of the sixth cervical vertebra of the gorilla
12. Under view of the seventh cervical vertebra of the gorilla
13. Upper view of the atlas of the Negro (Pelican, Intydes)
14. Under view of the atlas of the gorilla

Plate
Dorsal Vertebrae

No. 1. The thirteenth dorsal vertebra of the gorilla.
2. The twelfth dorsal vertebra of a Negro.
3. Lower view of the tenth dorsal vertebra of the gorilla.
4. Posterior view of the tenth dorsal vertebra of a Negro.
5. Lower view of the tenth dorsal vertebra of the gorilla.
6. Lower view of the tenth dorsal vertebra of a Negro.
7. Front view of the tenth dorsal vertebra of a gorilla.
8. Front view of the tenth dorsal vertebra of a Negro.

Plate
Lumbar Vertebrae

No. 1. The four lumbar vertebrae of the gorilla.
Fig. 1. Dissection of the Sphinks.
3. The Second Lumbar vertebra of the Sphinks.
4. Upper view of the second lumbar vertebra of the Sphinks.
5. Side view of the upper views of the third lumbar vertebra.
6. Upper views of the second lumbar vertebra of the Chimpanzee (Troglydyte sylvestris).

Plate X.

The Sacrum.

Fig. 1. The Sacrum of the Sphinks.
2. Upper view of the sacrum of the Chimpanzee.
3. The sacrum of the Chimpanzee.
4. Upper view of the sacrum of the Chimpanzee.
5. The sacrum of an adult male Australian.
6. Upper view of the same sacrum.
7. The Sacrum Superior of a Bushman.
8. Upper view of the same Sacrum.