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REVIEW ARTICLE

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# A Research on Anatomical Approaches from a Phenomenological Perspective: A Case Study of Anatomy

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## CONTEXT

The anatomical approach of the organism enlightens a gigantic measure of itemized information. The skeleton, the muscles, the faculties, the nerves, and the inner organs are exposed and made accessible for study.

Information of portions does not, on the other hand, give us knowledge into the type of the organism in its totality and the topographical relationship and morphological specificity of the different details.

Assuming that, after an anatomical analyzation, we need to reassemble the parts we have found into a entire organism, that would just be conceivable if its all the same to we have the first structure. Information of the portions, all things considered, does not give any knowledge into the outer structure or the outline of the organism. Somebody who has never watched a human organism in toto won't have the capacity to think of a significant mix of the differentiate parts. It shows up, in this manner, that the outline - or the 'Gestalt'- of the organism has, by rights, its own character and that the items might be seen as increments to that personality.

Learning of the entire is the foundation for all morphological bits of knowledge. With the support of Goethe's philosophy one has the ability to make a cognitive process in which average morphological aspects furnish a generally speaking understanding into the morphology of the entire organism.

Near anatomy shows, in a manner that is quickly obvious, that organisms create consistent with a particular plan. Accordingly, the organisms of higher mammals dependably have a discernable head, a middle and appendages. This structure could be found as far again as the fossils, and the trilobites even owe their name to this trichotomy.

Keeping in mind the end goal to have the capacity to distinguish the diagram of an organism, a near, distinct research technique is important. That research may incorporate an extensive variety of organisms in request to have the capacity to distinguish the similitudes and contrasts in their morphology. A second probability is to study the morphological aspects of the different systems inside one organism keeping in mind the end goal to uncover how the plan shows itself inside differing tissue sorts and organ systems.

In this module, we will, in particular, hold fast to the last technique. Our goal is to be ready to distinguish and portray by and large animated morphological motion. When the general morphological aspects have been found, the varieties in the portions of the different systems could be portrayed.

In this module, anatomical/morphological parts of the human organism are depicted. It is not our objective here to be as exhaustive as might be normal of an anatomy course book. There are an extraordinary number of anatomy course books and a lot of people are of phenomenal quality. The anatomy subjects examined here have been chosen as a result of their quality in taking in about the outline that invades the whole organism and since they give themselves to a phenomenological approach. This does not infer that other anatomical items or systems might not be suitable for such an approach. A cognizant choice has been made for a choice since this is about showing the viewer to create his or her phenomenological abilities. We have not restricted ourselves to the discourse of one and only area of anatomy - for instance, the skeleton - since an examination of the outline over different systems gives us an improved thought of what exactly is rehashed and what exactly has metamorphosed around these systems. The spectator could, obviously, do a phenomenological study himself of those anatomical systems that we have not talked about.

## MORPHOLOGICAL CHARACTERISTICS

In numerous characteristic history galleries, one discovers showcases of skeletons of existing and wiped out animals. For both the learned and the uneducated guest, the type of the whole organism

gets clear from essentially taking a gander at the skeleton. This expressiveness and the relationship to the correct structure is powerful to the point that even fossil science sees the skeleton as illustrative of the manifestation of the whole organism. In fossil science, recreations of organisms are made utilizing skeletons - and parts of skeletons - that have been found. These reproductions are recognized to be amazingly solid in light of the fact that the parts of the skeleton have a relationship to the perceptible type of the whole organism.

Morphologically, the most trademark bit of the human skull is the spherical, domed crown of the skull. From the eyebrows to the foramen magnum, the neurocranium has, inside a certain variety, an almost superbly spherical structure. The base of the skull and a bit of the maxilla and mandible easily fill in the missing portion of the sphere with the goal that the head overall (the bones of the neurocranium and the bones of the base of the skull and the face) give the impression of being spherical.

When we think about the development of the skull of a little kid up through adulthood (fig.1.), remembering the spherical structure, it is striking that the trademark, spherical structure remains sound throughout the advancement of the skull. The development of the skull shows, accordingly, a particular development changing: within the skull, bone vanishes while, on the outside, juxtaposition of skeletal substance tissue happens. This applies, in particular, to the neurocranium. Throughout their advancement and development, the cranial bones administer an equivalent separation from a fanciful midpoint of a sphere.

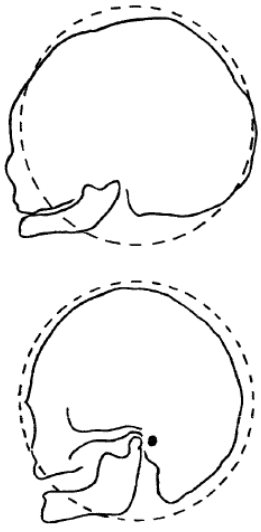

Fig. 1. Spherical form of the head during lifetime

The flat bones of the skull that develop through membranous ossification provide the growth of the skull as a whole with a dynamic of all-round growth. As appears from figure 1., the development of the face also adjusts itself to this dynamic and, therefore, places itself within the morphological dynamic of this spherical development. The human head maintains the characteristic spherical shape from early development until the end of life.

The bones of the *neurocranium* originate primarily through *membranous (desmoid) ossification* or through a combination of desmoid and endochondral ossification, as is the case with the sphenoid bone, the temporal bone and the occipital bone. Of these bones, the parts that belong to the base of the skull tend to be endochondral and those that are a part of the neurocranium tend to be desmoid. The connective tissue around the primitive brain functions as the preliminary stage for the desmoid bone that grows in the form of rounded, flat plates of interstitial tissue. The cells for these interstitial plates develop from the *ectoderm (neural crest)* and *not*, as is the case in the remaining bone tissue, from the mesoderm. In membranous ossification, the osteoblasts develop directly from mesenchymal cells. They occupy a special position in the skeletal development process, which originates through endochondral ossification nearly everywhere else.

The occipital bone and the elements that will form the base of the skull and the jaw develop from mesodermal tissue. For the base of the skull, that is mesoderm from the paraxial somites and the pharyngeal arches. The osteogenesis of these parts of the skull shows a relationship to the osteogenesis that occurs in the extremities.

The human head has the characteristic *spherical form* that is primarily constructed from the *planes* of the neurocranial bones. This morphological tendency is displayed in many ways. In the macroscopic appearance of the human head, this tendency is immediately observable and finds its maximal expression in the formation of the neurocranium.

Microscopically the form of the ossification centers can be placed within the geometry of planes and spheres, since the circle with its midpoint and corresponding rays can be seen as the projection of the sphere onto a flat surface. The *plane* (mathematically, a sphere with an infinitely long radius) and the *sphere* are the forms that are the foundation of the form and the development of the cranium in the human being.

## THE NERVOUS SYSTEM MORPHOLOGY

The nervous system is separated into a central nervous system, comprising of cerebrum and spinal string, (placed inside the noggin and the spinal segment) and a peripheral nervous system that is framed by the spinal and peripheral nerves (placed outside of the noggin and the spinal section).

The primary developmental period of the part of the central nervous system that creates intracranially is portrayed by the production of cerebrum vesicles. The

cranial bit of the unique neural tube enlarges enthusiastically in all bearings, so the - at first tubular - mind creates a wide lumen with a quite thin divider (fig. 2.). In this spherically-formed expansion of the neural tube, three areas might be recognized from cranial to caudal: the pros encephalon, the mesencephalon and the rhomb encephalon.

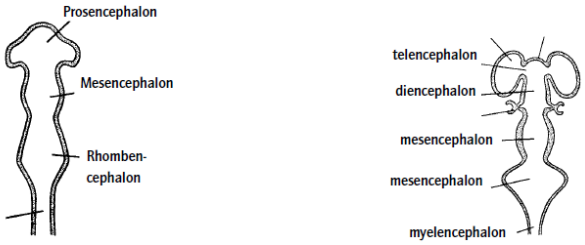


Fig. 2. Brain vesicles (Langman 1995).

Spinal nerves structure plexuses. Plexus arrangement is a morphological normal for the peripheral nervous system. The cervicobrachial plexus and the lumbosacral plexus structure the areas of inception of the peripheral nerves for arm and leg. From the plexus, the way of the nerves has an outspread extension. In a peripheral bearing, the bifurcation and difference of nerve fibers expansions and achieves its greatest at the surface of the body. In the arms also legs, the rhythmical segmental structure of the spinal nerves looses its inflexibility through plexus structuring. The birthplace of metamerism can without a doubt be followed, however the nerves have been transformed and recombined by plexus structuring.

The autonomic peripheral nervous system has a tantamount morphology. We likewise find plexus structuring for the inward organs. In the autonomic nervous system (thoughtful and in addition parasympathetic), the plexus is the way for all nerve fibers. Just those

fibers that are connected in a peripheral ganglion and which create from preganglionic fibers into postganglionic fibers, get successful as autonomic efferent fibers.

The attentiveness to animals when they are wakeful and the hesitance of humans are specifically identified with the level of advancement of the cerebrum. In this appreciation the relative weight of the human mind in correlation to the body weight, puts the human being in a one of a kind position. The capacity to be cognizant of one in watching one's surroundings (tactile) and the capacity to be cognizant of oneself in movement (engine abilities) are outflows of hesitance.

## THE DIGESTIVE TRACT MORPHOLOGY

On the foundation of embryological advancement, the digestive system is isolated into a foregut, a midgut and a hindgut. The moves are spotted in the duodenum recently passed the opening of the bile conduit and in the transverse colon at 1/3 of the lienal flexure (fig. 3.).

This trichotomy returns in the engine action, and at the practical level. In the foregut, we discover peristaltic drive and processing; in the midgut, pendular development also ingestion and in the hindgut stasis, inspissation and bacterial colonization.

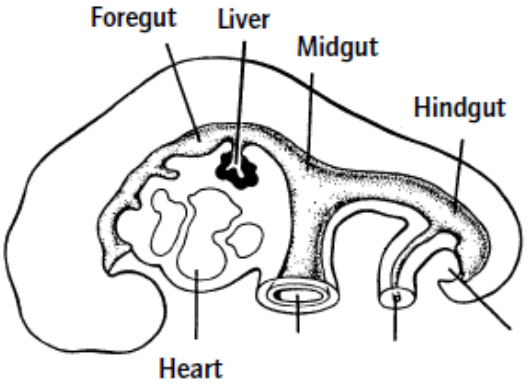


Fig. 3. Primitive intestine (Langman 1995).

An unique morphological part of the foregut is the vicinity of huge excretory organs, for example, the salivary organs, the liver, and the pancreas, which all originate from the primitive digestive tract. These organs all have a pretty much spherical shape, are placed at a certain separation from the sustentative waterway and are associated with the digestive tract through excretory pipes. The microscopic organs of the stomach have a tubular structure and showcase a tantamount morphology.

A morphological Goethean appraisal of the digestive system is not basic and merits early on comments. Morphological separation conveys what needs be in intricacy of tissue and organ structure. Naturally visible samples of a high level of separation might be found, for instance, in the mind, the tangible organs, or the kidneys. A low level of plainly visible separation might be found in the liver, the digestive system, or the skin.

Illustrations of a high level of microscopic separation could be found in neurons, retinal cells, muscle tissue, or erythrocytes; a low level of separation in intestinal cells, liver cells or skin cells: their structure is less perplexing. There is a complementary relationship between the capability for cell division in tissues and the level of morphological separation. A high level of separation goes deliver hand with fewer unit divisions; a low level of separation with numerous cell divisions.

The improvement of dangerous tumors is specifically joined with this sensation: low separation implies a high risk of threat; high separation implies a low shot of threat. The improvement of the digestive system from the yolk sac is coupled with minimal morphological separation: the tissue holds a primitive structure. Phenomenology is constrained when confronted with a shortage of striking morphological phenomena, both perceptible and microscopic.

## MORPHOLOGY OF THE HEAD

Sometime during development, the manifestation of the head and, in particular of the skull in grown-up vertebrates, has steadily formed into the spherical shape that we distinguish in the human being. The refinement between trunk and head in association with the improvement of the neck gets, throughout the course of development, perpetually unmistakable. Around more level animals -, for example, for instance, fish - there is no outer, anatomically conspicuous division between trunk and head. Concurrent with the presence of the neck, we discover an progressively spherical type of the skull. Throughout this process, the head gets to be free and creates a divide position inside the structural engineering of the organism.

Throughout this advancement, the skull turns into the part of the organism in which the most significant part of the central nervous system is placed: the cerebrum and the cerebellum, the diencephalon, and the mind stem. A second part of the advancement of the skull shape is specifically joined with the above and is identified with the position of the skull inside the blueprint of the body.

The human skull is unique in that it rests on theatlanto-occipital joint in a pure *position of balance*. The skulls of all apes and lower mammals maintain partial limb characteristics and display, a robust forward growth of the area of the face and jaw (prognathism) by which the head does not balance on the atlanto-occipital joint but inclines sharply forwards and downwards. At the same time, there is a relative shifting of the foramen magnum in the dorsal direction. Not only among the apes, also among a great number of mammals do we find thick neck muscles that, to some extent, keep the skull balanced and prevent the head from slipping forward off the spine.

## *POLARIZATION*

We have seen that polarization is a paramount morphological rule in human morphology. Throughout the exchange of the skeleton, we secured that the head and the appendages show a strikingly diverse and polar morphology. The skull, the thorax, the spinal segment, and the furthest points each one presentation polar angles. The spherical inclination overwhelms the structure cranially and the outspread inclination overwhelms on the caudal end. In the middle of the two, a rhythmical guideline emerges that both separates and join the shafts. In this part, we will further study how polarization shows itself in the different locales of the human organism.

The ascensus and descensus of creating organs and tissues in the embryonic improvement of all organisms, is a sensation that shows the heading of polarization. The rule of polarization furnishes understanding into the importance of the ascensus and descensus of organs and tissues. The general inclination that could be watched in this is that topographical relocating of the organs and tissues is joined with the capacity they have in the plan of the organism. Plummeting organs, for example, the neurohypophysis, the thyroid, and the gonads have more the character physiologically, of the metabolic system. Climbing organs, for example, the adrenal organ, the spinal rope, and the adenohypophysis are physiologically all the more nearly identified with the nervous system. There seems, by all accounts, to be a relationship between the topographical position inside the plan and the physiology of organs or organ systems.

Morphologically, the human hand and foot are an exemption to the tenet as for the primates and different mammals. Anatomically the human foot is totally pronated. The enormous toe is non-opposable and the lower leg joint is foremost. Humans remains with the soles of their feet parallel to the surface of the earth. The curve of the foot is, structurally, optimally organized to lead the power of gravity and with at least skeletal substance material also a greatest of mechanical flawlessness is accomplished.

Anatomically the hand is totally supinated, and the ulna and sweep are parallel to one another. The thumb is maximally opposable and there is free portability to the best conceivable degree. That is the reason, in antiquated classification, the upper furthest point was known as the "extremitas libera".

We accentuated that, in humans, polarization is amplified. The hands and feet of mammals and even primates have an extraordinary similarity to one another. In this appreciation as well, humans could be separated, morphologically, from all mammals. The long bones of all the higher mammals show an inclination towards ebb and flow. This is correct for every individual bone and additionally for the position of the furthest points: no warm blooded creature extends its furthest points throughout standing or strolling. The front and back legs dependably remain somewhat bowed. Inside the diagram of the organism, that propensity has a place with the dynamic of the head.

## CONCLUSION

The morphology of the skeleton shows two dynamic, polar methodologies spoke to by the type of the skull and of the long bones. Spherical surfaces overwhelm in the skull, while the spiral creations overwhelm in the limits.

The rhythmical structure of the thorax involves a position that is halfway between the skull and the limits, in which change and reiteration penetrate one another. In the transformation coming about because of this, the polar dynamic of the skull and the long bones is still conspicuous in simple structure as morphological procedures; these courses of action saturate one another however don't prompt an uneven morphological element.

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