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The Taste by Which They Are to Be Appreciated:
Egypt, Greece, and Canons of Proportion

This paper explores the connections between ancient Egypt and Greece from the 8th to 4th century BCE and shows that Greek art from this period was based on the same principles as Egyptian art. This paper also discusses how artists created canons of proportion to express their understanding of the fundamental order of the world. A canon is a relational compositional system of measurements based on observations of nature and standardized using a mathematical key like the golden ratio. This system is not related to the superficial appearance of a thing and can be used with a composite (Egyptian) or naturalistic (Greek) perspective. The canon represents the planning that begins before an artist has even conceived of a subject—it requires artists to know what sort of perspective will be used, and how large the final product will be. With these two questions answered, the artist can begin the work confidently knowing the anatomical structures will match the established norm. In this way, the canon provides a visual continuity between different artworks, artists, and even cultures. The canon is itself an expression of culture and tradition. This does not limit the artist's individual creativity but provides a platform from which his/her nuances of style can be recognized and appreciated. The canon is not a law, but a guiding principle.

This paper is divided into three sections: *Egyptian*, *Greek*, and *Canon*. It will begin by broadly discussing Egypt and then Greece around the 8th century BCE. This will show that both cultures had a fascination with order, and that Greece was not the haven for democracy and individuality that modern culture believes it was. Philosophically, Egypt and Greece had much in common. This will be discussed by focusing on trade between the two cultures beginning around

the 8th century and centering on the community of Naucratis. Not only was Naucratis the only foreign settlement in Egypt, but it was likely involved in the transmission of the Egyptian canon to Greece. This is followed by a third section that is a more detailed exploration of canons of proportion.

Due to its association with Classical Greek art, the canon of proportion is sometimes referred to as the canon of beauty. Many artists, critics, and historians since the Roman era believed the beauty of Greek art was derived from their use of a mathematical system of proportions. This is not completely erroneous as there is a connection between harmonious proportions, symmetry, and beauty; however, a full discussion of the topic is outside of the scope of this paper. Here, the focus is mainly on the history of Egyptian and Greek canons of proportion.

Beauty has mostly been removed from modern art discourse. It has always been a difficult concept; Plato often oscillated between the detrimental and inspirational aspects of beauty and therefore art. It was at once something that had the potential to weaken and enslave men, and an expression of divinity—an aspirational ideal. This stemmed from the division of beauty into the physical and the divine. Divine beauty was masculine, and its contemplation could elevate man; physical beauty was feminine, and could lead men to destruction. This division continued through the Middle Ages, the Renaissance, and manifested in the 18th century in Kant and Burke as the term *sublime,* representing masculine/divine beauty, and *beauty* representing feminine/physical beauty. With the rise of feminism in the 20th century, beauty came to represent the Western patriarchy. It could no longer function as a descriptor of art without recalling the thousands of years it was used to objectify the feminine.[1] Interestingly,

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[1] Grace Jantzen, "Beauty for Ashes: Notes on the Displacement of Beauty," *Literature and Theology* 16, no. 4 (2002): 427–37, http://www.jstor.org/stable/23926828.

modern art has little concern for classical concepts of masculine or feminine beauty, while popular culture seems obsessed with it. Beauty should not be deleted from the contemporary conversation. Studying the history of beauty illuminates how art and language can be used to discriminate and objectify. It also shows how the meaning of a word or concept can change over time.

A second possible point of contention in this paper relates to another modern bias—that art requires study to be understood. Most people believe they are naturally equipped with enough intelligence and insight to appreciate art and distinguish the good from the bad. The word appreciate is key because one can appreciate a beautiful sunset without knowing how the atmosphere contributes to its coloration. Understanding is not required for appreciation. The final section of this paper discusses how the audience's foreknowledge of a story allowed Greek tragedians to express themselves with subtleties. This brings to mind thoughts of a classical education and its relation to classical art. There is no doubt that a classical education allows one a deeper understanding of classical art. However, a classical education was a method of differentiating and segregating between social classes, genders, and ethnicities for many centuries. It was one of many things that contributed to the conception that Western culture was civilized and all others were primitive. This bias has been recognized, but little has been done to correct it aside from making a classical education even more exclusive. Elitism aside, having an understanding of the classics can deepen one's understanding of classical art. It does not have to be a reflection of privilege, but the desire to appreciate the subtleties of art.

Egypt

Many conditions played a role in defining Egyptian culture. In the essay "Egyptian Art," William Stevenson Smith provides a basis for interpreting Egyptian art by considering possible environmental, cultural, and social influences. In this discussion, he compares ancient Egypt with the contemporaneous cultures of Mesopotamia and Crete. This comparison shows how much terrain and resources influenced the art of these cultures. The ancient styles of Crete, Mesopotamia, and Egypt shared many formal similarities, such as a composite perspective, the anthropomorphizing and deification of certain animals, static poses, hieratic scale, and so forth. Egypt was unique among ancient civilizations in how these basic formal qualities were expressed. The abundance of stone, lack of rain, relative isolation, and the belief that death began another phase of life all distinguished Egyptian art and culture.[2]

Among ancient civilizations, Egypt presents remarkable continuity and stability. This was due in part to Egypt's isolation from external influences. Built on a small sliver of land along the Nile, inhospitable desert barriers buffered Egypt from the world. In addition, it almost never rained in Egypt. The fertility of the land was completely dependent on the annual flood. Nature provided a very distinct and orderly presentation of life, death, and rebirth in this environment.[3] This likely gave rise to the Egyptian belief that life continued after death—that death was the deluge, giving rise to new life. Much of ancient Egyptian life, art, and engineering was dedicated to caring for the spirits of the deceased. Stone statues were provided as substitute housing for one's soul (ka) in case one's mummified remains were destroyed. This gave rise to portraiture in Egyptian art. Although much of the human form followed cultural prescriptions, the individual's

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[2] William Stevenson Smith, "Egyptian Art," in *Readings in Art History*, ed. Harold Spencer (New York, NY: Scribner's, 1976), 7-20.

[3] Smith, "Egyptian Art," 9-12.

identity was important due to its function as a spiritual receptacle. Therefore, Egypt was particularly concerned with observations of nature and the individual, employing a distinct and subtle naturalism.[4]

The abundance of good stone was a significant environmental influence on Egyptian culture. Early on, Egyptians learned to quarry large rectangular blocks of stone, thus ensuring an ample supply for sculptors and builders. This enabled Egyptian sculptors to work on a scale unimaginable in Cretan or Mesopotamian cultures. This rectangular quarrying technique may have also predisposed Egyptian sculptors to creating cubical forms, in contrast to the rounded forms of Mesopotamia. Egyptian sculptors did not attempt to disguise the material, and made it clear that the work was carved from stone, further emphasizing the fixed permanence of Egyptian statue.[5] However, not everything in Ancient Egypt was made from monolithic stones. Many secular buildings were made of mud-brick and wood, and many artworks not intended for royalty were made of wood and show more naturalism. Rigidity and formulaic construction was necessary for depictions of royalty to present them as part of an orderly and stable tradition of rulers and culture. The longevity of royal stone constructions has skewed the archeological record, since most secular art and architecture did not survive into modern times. The abundance of stone in Ancient Egypt was perfectly suited for their desire to build massive and timeless structures, or perhaps this abundance is what allowed Egyptians to conceive of such buildings.[6]

Ancient Egyptian art was a unique combination of formulaic construction and intimate attention to detail. Orderliness and continuity characterize this expression; even specific historic events are symbolic and signify an idea rather than historic fact. One cannot understand this art

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[4] Smith, 9-12.
[5] Smith, 9-12.
[6] Smith, 9-12.

without allowing for a many-sided approach. Although formulaic and rigid, it is also exceptionally fluid. Gods were often combined, but remained distinct, and a single god could manifest in many different forms. This singular multiplicity stems from the Egyptian concept of life—a single life force has remained in operation from the beginning of the world and that life force can move through many different physical bodies or objects and remain unchanged.[7] This seemingly rigid fluidity is also characteristic of the Egyptian canon and canons in general. This characteristic took root in Greece, for although their art was more individualized and expressive than Egyptian art, it was based on formal consistency stemming from the concept of *symmetria*.[8]

Egypt is consistently cited as an origin for monumental sculpture in ancient Greece. Daedalus, the mythical first Greek sculptor, was said to have had close ties with Egypt. Greek monumental sculpture began during the early Archaic period, around 650 BCE. In Egypt, this was the 26th dynasty, known as the Saite Dynasty. For Egypt, this was the beginning of the Late Period, near the end of their very long history. The Saite Dynasty was the first native dynasty after around 100 years of Kushite rule (the 25th dynasty was the Nubian or Kushite Dynasty).[9] They were concerned with reestablishing Egyptian traditions and connecting themselves to the Great dynasties of the Old Kingdom. Similarly, the Mediterranean had just emerged from a dark age; however, Greek culture was nascent, and had yet to establish any traditions. Although at opposite ends of their history, these cultures were both in the process of developing new relations with neighboring civilizations and defining their own cultures in turn.[10]

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[7] Smith, 13-17.

[8] This will be explained in the *Greek* section of this paper.

[9] Kim Levin, "The Male Figure in Egyptian and Greek Sculpture of the Seventh and Sixth Centuries B. C.," *American Journal of Archaeology* 68, no. 1 (1964): 13-14, https://doi.org/10.2307/501521.

[10] Levin, "The Male Figure in…," 13-14.

In Egypt, the decade from 670-660 BCE was defined by conflict between the Saite Dynasty in the north and the Kushites in the south. By 660 BCE, there was no commerce between Upper and Lower Egypt. Therefore, the northern Delta looked towards the Mediterranean for trade. Ionian Greeks had been familiar with the Egyptians since the 8th century.[11] At this time, invasions by the Cimmerians had disrupted Ionian land trade in Asia Minor and they were forced to focus on sea routs. Therefore, the Egyptian Delta and Ionian Greeks began to trade extensively with one another in the seventh century. The extent of this relationship is evidenced by Psamtik I, first pharaoh of the Saite (26th) dynasty (664-610 BCE), allowing Greek settlers in Egypt, and king Amasis (570-526 BCE) sending statues as offerings to Greek sanctuaries.[12]

The Seite dynasty focused on reviving styles from the Old Kingdom; however, they did not limit themselves to merely copying the past. Saite artists abandoned polychromy in favor of a polished stone finish and changed their canon of proportion to use a larger, royal cubit that was traditionally only used for architecture.[13] This canon associated the width of the fist with a single cubit or module and did not result in a significant difference in the proportions of their figures; however, it did unify the proportional systems of Egyptian art and architecture. It is not known if this directly influenced Greek artists, but they also constructed their buildings according to the same canon of proportions used to sculpt the human form.[14]

There is little doubt that Egyptian art influenced that of Ancient Greece. The nature of that influence was not constant, but continuously evolving. The settlement of Naucratis provides a unique insight into the relationship between Greece and Egypt. Contact between the two

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[11] Levin, 13-14.
[12] Levin, 13-14.
[13] Canons of proportion will be discussed in detail in the *Canon* section of this paper.
[14] Levin, 15-18.

cultures dates back to the Minoans. However, this was disrupted during the Greek dark age from around 1100 – 800 BCE. Contact resumed without interruption in the seventh century. The pharaohs of the 26th dynasty had a close relationship with the Greeks because they helped them fight against Kushite and Persian invaders. Naucratis was the first instance of a consistent and organized Greek presence in Egypt.[15] It is not known exactly when the community was founded but it likely began as a military settlement under Pharaoh Psamtik I (664-610 BCE) who employed Greek mercenaries in the Egyptian army. The town of Naucratis was a way for Psamtik to manage his mercenary forces and reward them for their service. It developed into a major commercial center and a designated trading port during the reign of Amasis II (570-526BCE), when it became the sole *emporion* in Egypt. An *emporion* was the port of a polis where external trade took place, as opposed to an *agora,* which was where local trade took place.[16]

 Naucratis was the only foreign settlement allowed in Egypt. It was also exclusively Greek—no other foreigners were allowed to settle there. It is likely that Egyptians lived there as well, as there would have been a need for administrators and officials to regulate its unique economy and maintain its infrastructure.[17] Naucratis served as the transition zone between the free trade of the Greeks and the centralized economy of Egypt. It was the main source of foreign goods for all of Egypt. Additionally, many Egyptian ideas reached the Greek world through Naucratis that would prove to be profoundly influential. Primary among these were the Egyptian styles and methods of architecture and sculpture.[18]

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[15] Myrto Malouta, "Naucratis," *Oxford Handbooks Online*, 2015, 3, https://doi.org/10.1093/oxfordhb/9780199935390.013.114.
[16] Malouta, "Naucratis," 3.
[17] Malouta, 5-10.
[18] Malouta, 5-10.

It should be remembered that Greece was not unified, and Naucratis was originally settled by several different city-states, mostly from eastern Greece. However, the Egyptians did not recognize individual city-states. *Hellenion* was a term used in Egypt to refer to Greeks—it denoted a generalized Greek identity.[19] The origin of the term is not known, but it came into use under Amasis II. The regional differences that divided and distinguished Greek city-states were not as relevant in Naucratis. Being situated in foreign country promoted a collective identity among its Greek inhabitants—when compared to Egyptians, their similarities, rather than their differences, became apparent. Naucratis provides the only explicit concept of Hellenism in the Archaic period.[20]

The human form as expressed by the Greeks was a direct response to the Egyptian style. Not being tied to Egyptian culture or history, Greeks were able to absorb only those aspects of style that suited them, without regard for their original meaning or implications. Architectural molding types, lion-headed waterspouts, stylistic mannerisms in sculpture (stance, hair, and smile), and even the technology of art and architecture itself all stemmed from Egypt.[21] This was not always a direct influence, and many Greek imitations could have been the result of rumors and not firsthand experience. In some work, there is the sense that something was learned from Egypt, but not very well. Other works reveal a close contact and familiarity with the techniques of Egyptian art.[22] This is evidenced by the fact that a statistically significant number of Greek Korai were made according to the second Egyptian canon used during the Saite Dynasty.[23]

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[19] Malouta, 9.

[20] Malouta, 9.

[21] Whitney Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," *The Journal of Egyptian Archaeology* 67 (1981): 62–63, https://doi.org/10.2307/3856603.

[22] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture, 62-63.

[23] Eleanor Guralnick, "Proportions of Korai," *American Journal of Archaeology* 85, no. 3 (1981): 270–80, https://doi.org/10.2307/504170.

The use of the proportional canon would have to be taught and explained by an Egyptian master, and suggests that there were Greek artists trained in Egyptian workshops, yet there is no archaeological evidence to support this claim. Little is known about the nature of Egyptian workshops during the 26th dynasty, but surviving evidence points to it being similar to a Renaissance workshop.[24] Novices would have begun by copying increasingly more difficult compositions, and once a certain proficiency was achieved, most education would occur on site. Whether a freestanding or relief sculpture, many artists began by drawing a grid on the surface to be carved. This grid helped to orient the artist and served as a foundation for the canon of proportion.[25] However, the canon was not simply a device by which a design could be copied from one surface onto another. This interpretation undermines the intricacy of canonical formulations and their purpose.[26]

The canon was developed to define and standardize the proportional relationships between the parts of the human figure and the whole. This ensured a uniformity between representations. The canon employed a grid that could be used to copy a form, but was not intended for that purpose—any co-ordinate system could be used as a copying device.[27] Additionally, the canon did not depend on a grid; figures could be built according to the canon based on only a vertical line. What makes the canonical grid unique is the relationship between specific coordinates and precise points of the body. It was a way of organizing the human form.[28] Before discussing the intricacies of a canon of proportion, it is important to understand the nuances of Greek culture.

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[24] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," 64-65.
[25] Please see images on pg.24
[26] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture, 64-65.
[27] This will be discussed further in the *Canon* section of this paper.
[28] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture, 64-65.

Greece

Ancient Greece was unique in the ancient world in that it was an assembly of different, distinct cultures occasionally acting in concert to achieve larger goals. Often, this is mistakenly associated with a celebration of individuality. However, Ancient Greece was not a haven for the individual and personal expression. In the essay "Art and Experience in Ancient Greece," J.J. Pollitt provides an analysis of the psychology and culture that framed the major periods of ancient Greek art. This provides a context for the rise of naturalism and humanism. The art of the ancient Greeks had a distinct function in their society and was not a manifestation of individuality or a spontaneous expression of brilliance, but a logical expression consistent with their beliefs.[29]

The most fundamental and important aspect of the ancient Greek character was their indefatigable quest for order. They not only sought to understand the mechanisms and patterns inherent in the physical world, but they also strove to apprehend and express that order mathematically. It is not known why this particular trait appeared in Greece after the dark age that followed the collapse of the Mycenaean civilization, but to these new Greeks, the undefined and seemingly random nature of the world was a source of constant anxiety.[30]

Greeks of the Archaic period are often characterized as innocent and emotionally simplistic; although this is true to some extent, it ignores their overriding distress with the apparent mutability of the physical world and the human condition. During this time, the Greeks discovered patterns of rational order that underlie all of existence. This discovery alleviated much anxiety and was apparently source of joy for Archaic Greeks. They did not separate

[29] Jerome Jordan Pollitt, "Art and Experience in Ancient Greece," in *Readings in Art History*, ed. Harold Spencer (New York: Scribner's, 1983), 51.
[30] Pollitt, 53-54.

rationality and spirituality, but merged the two into a quest for order as the spiritual ideal.[31]

Theirs was not an intuitive spiritual mysticism but an insight gained through rational analysis.

The Milesian philosophers of the 6th century based their cosmology on a primary substance

called *Kosmos* (meaning order). For them, the universe was order. This philosophical premise

was reinforced by similar discoveries in the realms of physics and mathematics. Regardless of

the specific era, ancient Greeks shared in this search for *Kosmos.[32]*

In response to the overarching anxiety caused by the irrationality of the world, three

primary principles emerged in Greek art. First was the discovery of the component parts of a

form. This is the process of denying a multiplicity of form by recognizing common components.

This is related to the concepts of *symmetria* and *rhythmos*.[33] Second was the expression of the

specific in terms of the generic. Greek artists sought to express only the essential characteristics

of a thing. This reduces (or expands) the individual from a person to the idea of person. It is an

abstraction and is related to Plato's concept of the forms. Third was the embodiment of dynamic

tension—Greek sculptures are moving yet static, tense and relaxed, approachable but isolated.

This paradoxical state embodies the concept of *kalokagathia*, the Greek belief that one's outward

form reflects one's internal intellectual and emotional state—that physical beauty reflects moral

goodness.[34] These three principles formed the foundation of ancient Greek art and the

particularities of each period do not represent new rules, but a different interpretation of these

principles.[35]

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[31] Pollitt, "Art and Experience in Ancient Greece," 53-55.
[32] Pollitt, 53-55.
[33] Pollitt, 53-55.
[34] Christine Gardner, "Defining Beauty," *The Burlington Magazine* 157, no. 1348 (2015): 489, http://www.jstor.org/stable/43858536.
[35] Pollitt, 53-55.

One prominent feature of the Classical period was the expression of severity, stoicism, or somberness. During the Classical period, individuality was praised and supported, but only so long as it was in the service of the community. Happiness was a result of knowing one's self, and avoiding excess; people were meant to excel, but only within the limitations of their place in society.[36] The Early Classical period was characterized by confidence and doubt. Confidence because the Greeks were victorious in the Persian wars, doubt because they feared the hubris that had brought defeat to Persians could also do the same for them. There was a recognition of another layer of order in the world; human actions had logical outcomes—that arrogance was penalized and moderation celebrated. This combination of confidence and doubt manifested in the somber thoughtfulness of Early Classical sculpture.[37]

The High Classical period showed confidence superseding doubt. This was a result of the lingering victory over the Persians, anthropocentric philosophy, and the success of the Aegean confederacy. This is most clearly understood through Protagoras' statement, "man is the measure of all things". This perspective holds that knowledge is subjective and there is no absolute or real world outside of human perception. It also supports the idea that man is the author of his/her reality and success is based on human will, rather than divine intervention. However, this statement is not a call for individuality, but the perfect functioning of the individual within society.[38]

The fourth century was characterized by a diminished confidence, and a return to doubt and anxiety. It shared more in common with the following Hellenistic period than the preceding Classical period. The Peloponnesian war broke the Aegean confederacy and the large size of

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[36] Pollitt, 58-69.
[37] Pollitt, 58-69.
[38] Pollitt, 70-74.

cities undermined a general feeling of community. Art became an expression of individuality rather than participation in a community. It focused on the experiences that were deeply personal or general enough to be understood across cultures. Even deeply personal emotions were reduced to universal experiences, such as grief or joy. In this way, emotions became another way to express the underlying order of the universe.[39]

The art of the ancient Greeks was anthropocentric but not a celebration of individuality. The individual was meant to serve the community. Underlining all of the major periods was a quest to discover the order of the world. The Greeks found this order in representations of the human form. Emotions that were at first rejected for representing chaos in the world were later reframed to show the consistency and universality of human experience. A rational mysticism permeated the art, literature, philosophy, and politics of ancient Greece; underlying this was a celebration of order and a rejection of chaos.[40]

In the essay "Nature, Culture and the Body in Classical Greek Religious Art," Jeremy Tanner continues this discussion by asking, what did naturalism do? Rather than, what did it mean? How did it function in ancient Greece? Art was the primary medium through which peoples responses could be conditioned and controlled. Art trained people to respond in predetermined ways and could order society by motivating people's commitment to social roles.[41] Naturalism was a way to strengthen this effect and deepen people's commitment. It should be noted that styles of art are not consciously chosen but culturally chosen and naturalism

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[39] Pollitt, 78-80.
[40] Pollitt, 51-82.
[41] Jeremy Tanner, "Nature, Culture and the Body in Classical Greek Religious Art," *World Archaeology* 33, no. 2 (2001): 261, http://www.jstor.org/stable/827902.

developed because of Greek culture. It is likely that Greek naturalism seemed odd to Egyptian tastes, and they considered their own art naturalistic.[42]

Greek sculpture was not remote or isolated, but embedded in religious practices and ideas. In the Greek religion, the divine and sacred were woven into the fabric of everyday life. Statues of deities marked the real presence of divinity and its associated powers.[43] There was a religious nature to the act of viewing, and viewing an image was interacting with a deity.[44] The ritual act of viewing was enhanced by the manipulation of light, the burning of incents, and the accompaniment of sound. These were not static objects, but objects painted and adorned with cloths. They represented the highest ideal of man and were simultaneously within reach, and an unachievable standard. This is consistent with the Greek belief that the greatness of the individual serves the larger community.[45]

Canon

Ideological differences between ancient Greek and Egyptian cultures mirror their aesthetic ones. Superficially they are distinct, but at the core, they both have the same goal of discovering and understanding the inherent order and harmony of the universe. Egyptian sculptors used this knowledge to construct their own ideal, which favored an expression that was aspective—it favored intelligibility over naturalism. An aspective composition only shows the most recognizable elements, and strives to convey the core of what is represented. It seeks to convey the greatest amount of information to viewer with as few elements as possible. There is no need to show both sides of a face or both eyes, as one usually looks like the other. However, both hands and feet must be shown since they can act independently. Nothing is hidden or left to

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[42] Tanner, "Nature, Culture and…," 261.
[43] This is similar to Christian icons.
[44] Tanner, 262.
[45] Tanner, 262.

question.[46] When Greece transitioned into the Classical period and its art reached new levels of naturalistic expression, it was still based on the same fundamental ideology of order. The mathematical procedures that enabled Greek artists to achieve their naturalistic ideal through rational understanding of the human body were learned from Egyptian sculptors.[47]

It is important to note that the canon of proportion is unrelated to the composite perspective characteristic of Egyptian relief carving. Perspective and proportion were not fixed in this system. The same canonical principles could be applied to a naturalistic figure, a composite one, or any other orientation. The procedure of proportioning parts and fixing them to a grid is always the same. What an artist must know is the key by which the figure fits into the grid. The perspective must be decided upon first, and then the grid allows the artist to create the proper proportions according the natural standard by which the canon was created.[48]

The final appearance, or *look*, of a sculpture has little to do with the canon. Something *looking* Egyptian or Greek is the result of many factors beyond the use of a proportional system. What the canon provided was precision, elegance, and aesthetic order. It was a system based on mathematics and ratios, and it required the artist to measure and plan ahead.[49] Stylistic features like a slight smile, hair/wig-types, and one leg moving forward were visually obvious and did not require much insight or training to become incorporated in Greek art. The proportional canon required training and understanding, and it provided much more than a novel pose or facial feature. It provided Greek artists with the same thing it gave the Egyptians, a precise

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[46] George Bernard, *Scribes of Ancient Egypt*, Film, Produced by Arturo Mio, Le Musée du Louvre, Arte G.E.I.E., 2009: 10:30-11:00, https://curiositystream.com/video/490.
[47] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," 80-81.
[48] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," 65-66.
[49] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," 65-66.

understanding of bodily proportions and insight into the organization of the human form and therefore the universe.[50]

The canon was based on precise measurements of natural bodily ratios and it is assumed the Egyptians conducted these measurements on living bodies. This was done very early on in Egyptian history as one of the earliest artifacts, the *Pallet of Narmer* (3200-3000 BCE),[51] employs the canon.[52] In this way, the Egyptians were no different from later Greek or Renaissance artists. Through close inspection, they discovered the natural relations, proportions, and harmonies between the parts of the body. Archaic Greeks did not perform their own measurements but adopted those of Egypt.[53]

As the Archaic period gave way to the Classical, Polykleitos and later Lysippos developed their own canons of proportion. As was the case with the Egyptian canon, these were formulated by taking extensive measurements of many living people, finding a suitable average, and using the golden ratio to extrapolate the relations and proportions between the parts of the body. Once established, an entire sculpture could be created using only a piece of string. These systems were likely influenced by the Pythagoreans, who saw numbers as geometric entities with unique spatial identities.[54]

The Polykleitan canon was based on the length of the distal phalange of the little finger.[55] Once this was established from observation, it was used to generate a golden ratio rectangle. This was accomplished by imagining the length of the distal phalange as the bottom side of a square (this square constitutes one module); the diagonal of this square is the length of the next

[50] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," 65-66.
[51] Image on pg. 24.
[52] Davis, "Canonical Representation in Egyptian Art," 23.
[53] Davis, "Egypt, Samos, and the Archaic Style in Greek Sculpture," 67.
[54] Richard Tobin, "The Canon of Polykleitos," *American Journal of Archaeology* 79, no. 4 (1975): 307–21, https://doi.org/10.2307/503064.
[55] …as opposed to the width of the fist in the Egyptian canon.

phalange and so on. In this way, the entire human figure can be built according to geometric relationships and the arithmetic value of each length need not ever be calculated. This process was typically executed with knots tied along a cord representing the different lengths of body parts.[56] Additionally, since this system is proportional, given the golden section, one could also begin with the entire figure representing one module (rather than the distal phalange) and subdivide it to arrive at the same proportions. Whichever module was chosen, it functioned as a geometric unit which could produce a sequence of proportions based on one constant ratio, that being the ratio of length to hypotenuse. Each geometric form was related in size and identical in proportion—the distal phalange could be represented by a square and the entire figure built according to this system could also fit into a square.[57] A similar process was employed and a separate string was made to establish the height of each section.[58]

This system defines things as numbers and visual beauty as an expression of numbers. Polykleitos believed that this number theory did not simply correspond to the visual proportions of the body, but was an expression of the ultimate reality.[59] Knowing this, he often altered proportions slightly to create an even more idealized form.[60] His sculptures were not men as they appeared, but men as they actually were.[61] Lysippos later altered the canon to fit his ideal, which resulted in an elongated figure with a slightly smaller head. He believed he was sculpting men not as they were, but as they appeared.[62] His system seemed less mathematical and emphasized the visual expression of the subject's emotions and psychological state. In reality, Lysippos'

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[56] Tobin, "The Canon of Polykleitos," 307-20.
[57] See diagrams on pp. 25-26.
[58] Tobin, 307-20.
[59] The world of the forms in Platonic terms.
[60] Tobin, 312-321.
[61] See image on pg. 27.
[62] See image on pg. 27.

sculpture was just as mathematical and canonical as that of Polykleitos.[63] This variability is an essential characteristic of any canon.[64]

The theoretical and abstract aspects of a canon are just as important as the practical ones. In "A Review of Proportion," Rudolf Arnheim discusses the reasoning behind the use of a canon of proportion. His ideas are a reflection of modern philosophy and the biological theory of aesthetics that sees art as evolving from simple to complex, primitive to sophisticated.[65] Although this theory is no longer considered accurate, his thoughts concerning the perceptual basis for a canon of proportion are still worth considering.

When one sees an image of a thing, whether an artistic reproduction or an object in nature, its physical form is understood in the human mind as not only what it is, but also what it ought to be. There is an intuitive sense of right and wrong inherent in one's experience of the physical world. This could easily be explained as a learned characteristic—that one is trained from birth to differentiate between pleasing and painful, good and bad.[66] There is no refuting that this forms a large part of peoples' perceptual biases. However, it does not address the possibility of an absolute or objective aesthetic goodness. Mathematics and metrology have been used repeatedly throughout human history in an attempt to discover and define an absolute set of proportions or ratios that are aesthetically pleasing to everyone. Conceptually, this gave rise to various canons of proportion.[67]

A canon of proportion begins with the assumption that an organism's response to a perceived pattern is shaped by the pattern itself. This is tied to basic biological needs. Orientation

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[63] Tobin, 312-321.
[64] This will be discussed at the end of this paper.
[65] Rudolf Arnheim, "A Review of Proportion," *The Journal of Aesthetics and Art Criticism* 14, no. 1 (1955): 45–57, https://doi.org/10.2307/426640.
[66] Arnheim, "A Review of Proportion," 45-57.
[67] Arnheim, 45-57.

is found in clarity and simplicity. Stillness comes from balance and unity, and stimulation from variety and tension. Some patterns fill these needs better than others—the circle and the square are balanced, unified, and still; a triangle has dynamic balance and projects movement. The golden rectangle successfully combines lively tension with unbreakable unity.[68] It is not clear why abstract geometry produces feelings associated with biological necessity, but it may indicate a psychological necessity that parallels biological needs, or that there is a close relationship between the mind and body and psychological needs can be satisfied biologically and vice versa. The actual mechanics need not necessarily be understood, only the understanding that physical objects, representations of physical objects, and abstracted form can all provoke responses, both psychological and biological, in the viewer (e.g. a sense of good, bad, balance, disharmony, joy, etc.). These responses are based in the essential characteristics of a thing and can be apprehended rationally. Therefore, there is a consistency and predictability to the way human beings respond to form – the optical pattern produces a corresponding mental configuration in the viewer.[69]

A canon is a combination of intuitive and rational judgement. The gestalt can only be approximated through a rational analysis of the relationships between constituent parts; the intuitive mind can understand it through the field of interacting forces itself. If one is able to reduce a complex visual pattern into a simple form like a triangle, it is incorrect to assume that merely combining triangles will result in the same complex pattern. This misconception leads to the practice of measuring with a yardstick. This dismembers a figure and disregards the relationships between constituent forms. A scaffold of units will produce an organized form, but it does not provide any relational information. The Pythagoreans understood that the relationships between forms and numbers give them meaning. This is evidenced in the harmony

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[68] Arnheim, 45-57.
[69] Arnheim, 44-45.

of musical intervals. According to the Pythagoreans, simple numbers, their mutual relations, and geometric forms based on these relations were the expression of the deepest truth of nature. The human body was the masterwork of nature and represented perfect measure—it was the highest ideal of symmetry and proportion. [70] In this system, it was never believed that a human body could be built by merely repeating the same basic formula—the macrocosm is not a mere repetition of the micro.[71] What was important was the relationship of the parts to the whole and the relationship of both the parts and the whole to pure geometric forms—the perfectly proportioned human figure could be perfectly inscribed within a circle and a square. Once this relationship had been formulated, then the human figure served as a blueprint for the entire universe. The canon of the Greeks and Egyptians was not a result of linear measurement, but a combination of intuitive and rational approaches to metrology and mathematics.[72]

A canon could also serve as a method of standardization, which is essential to mass production. This is true because any modular system or superimposed grid can assist with standardization and replication. However, a canon of proportion not only standardizes the form it relates to, but also the values and ideals that shaped the canon itself. It functions as a standardization of style. In this way, the canons of Egypt and Greece provided artists with a means for individual expression within a unified style.[73]

The connection between canon, style, and individual expression is also discussed in the essay "The Idea of a Canon of Proportion for the Human Figure," by Sturge Moore. A canon of proportion is not absolute harmonious proportion, from which any deviation will result in

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[70] Arnheim 45-46.
[71] It is gestalt.
[72] Arnheim, 45-46.
[73] This is similar to way any maple leaf can be understood as maple leaf despite the fact that they are all different and no one leaf fits the mathematical mean, Arnheim, 47-57.

diminished beauty. A traditional canon was something from which a master would deviate slightly in a direction that aligned with his or her own biases—this could result in a more elongated figure as in the case of Lysippos. Additionally, a canon could be modified over time. It was a guideline and not a strict formulation. Even within the Egyptian tradition, there is a sense of individual portraiture within its highly schematized figures. The canon informs the entire work of art and must be established and decided upon before a work is begun.[74]

Greek tragedy provides an insightful parallel. Tragedians did not tell their own unique stories to an uninformed audience. Greek tragedy was never new and never the same; it was a reimagining of myths and legends with which every Greek citizen was familiar. Here tradition provided an advantage, for any slight deviation from the traditional story could have significant meaning. Tradition allowed artists to communicate by means of subtleties. This stands in stark contrast to modern artists, who must teach their alphabet to the audience before the work can be understood—artists must create the taste by which they are to be appreciated. The rules of art are only useful insofar as they make creative license appreciable.[75] In this way, a canon, grid, or any other compositional system is lifeless in and of itself; but knowledge of these systems highlights subtlety for both the artist and the viewer, and enables recognition of the conscious expression of infinite freedom within a work of art. These systems are also not the result of a spontaneous moment of individual brilliance, but shaped by cultural and social pressures that can be far removed from any particular artist.[76]

A canon of proportion provides continuity between works of art and requires that the artist plan. As the work progresses it undergoes many intentional and unintentional changes

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[74] Sturge Moore, "The Idea of a Canon of Proportion for the Human Figure," *The Burlington Magazine for Connoisseurs* 5, no. 17 (1904): 475–81, http://www.jstor.org/stable/856009.

[75] Moore, "The Idea of a Canon…," 476-478.

[76] Moore, 476-478.

resulting from both the artist and his/her environment. The work is not subject to rigid principles but provided with internal structure and meaning upon which the artist can exert his/her personal expression.[77] A canon was not a way to restrict creativity but to support it, and also to provide a common language between artist and viewer. In this way, Pop Art is very effective in a postmodern culture. An artist need only reference a popular topic or image to evoke all the cultural meanings associated with it. A canon of proportion allowed ancient artists the same wealth of cultural meaning to draw upon in constructing their art.[78]

The art and culture of Ancient Greece and Egypt were both shaped by the quest for order and knowledge of the essential nature of the world. Although visually distinct, their art was based on the same concepts. This is most apparent in the use of a canon of proportion or beauty. This compositional system was the foundation for art in both cultures and contributed greatly to the iconic styles associated with ancient Egypt and Greece. For a modern audience, beauty represents something different than it did in the ancient past. Understanding its history can teach people how art and education can be used to objectify and discriminate against different classes, genders, and ethnicities. Studying the classics can deepen one's appreciation of all art. It does not need to be associated with privilege, but the desire to appreciate the subtleties of art and culture.
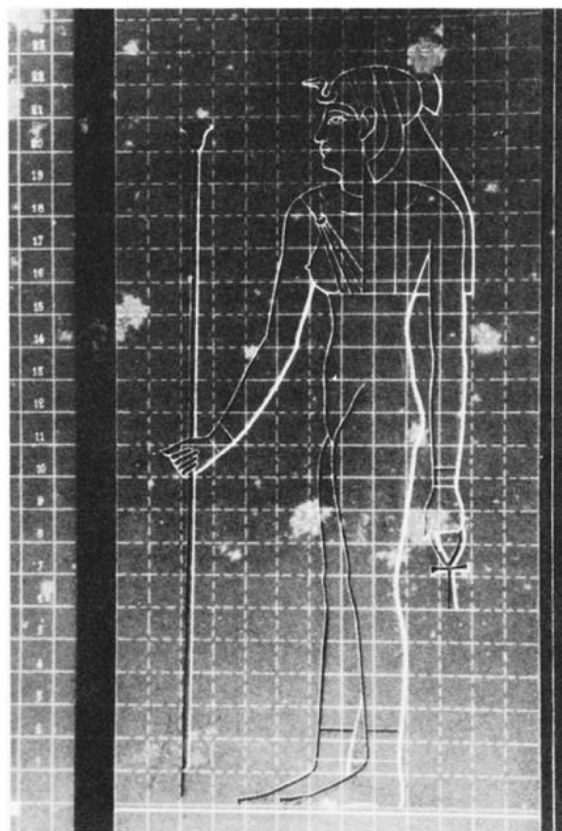
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[77] Moore, 476-478.
[78] Moore, 476-478.

Images
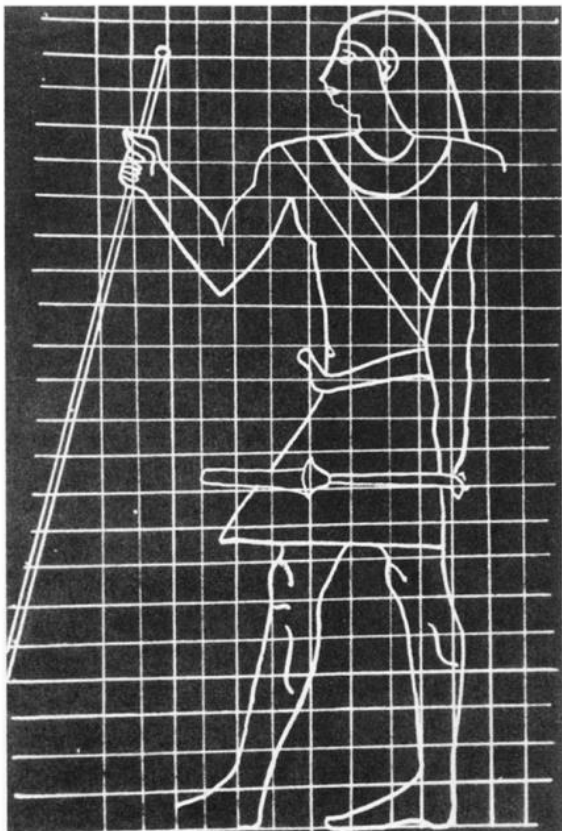
Drawing of Ibi, an official close to Psamtik I, with the remains of the original Second Canon grid. (Thebes, Tomb 36, 7th c. BCE).[79]

Drawing of a female in original Second Canon grid. (From A.Prisse d'Avennes, Histiore del'Art Egyptien I [Paris 1863] pl.64).[80]
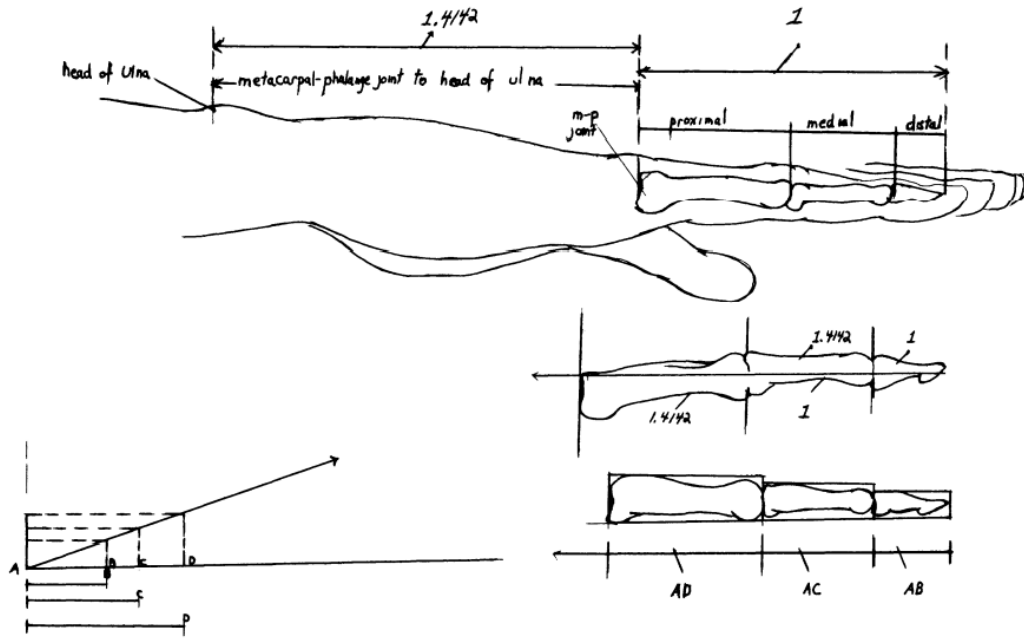
[79] Guralnick, 271.
[80] Guralnick, 271.

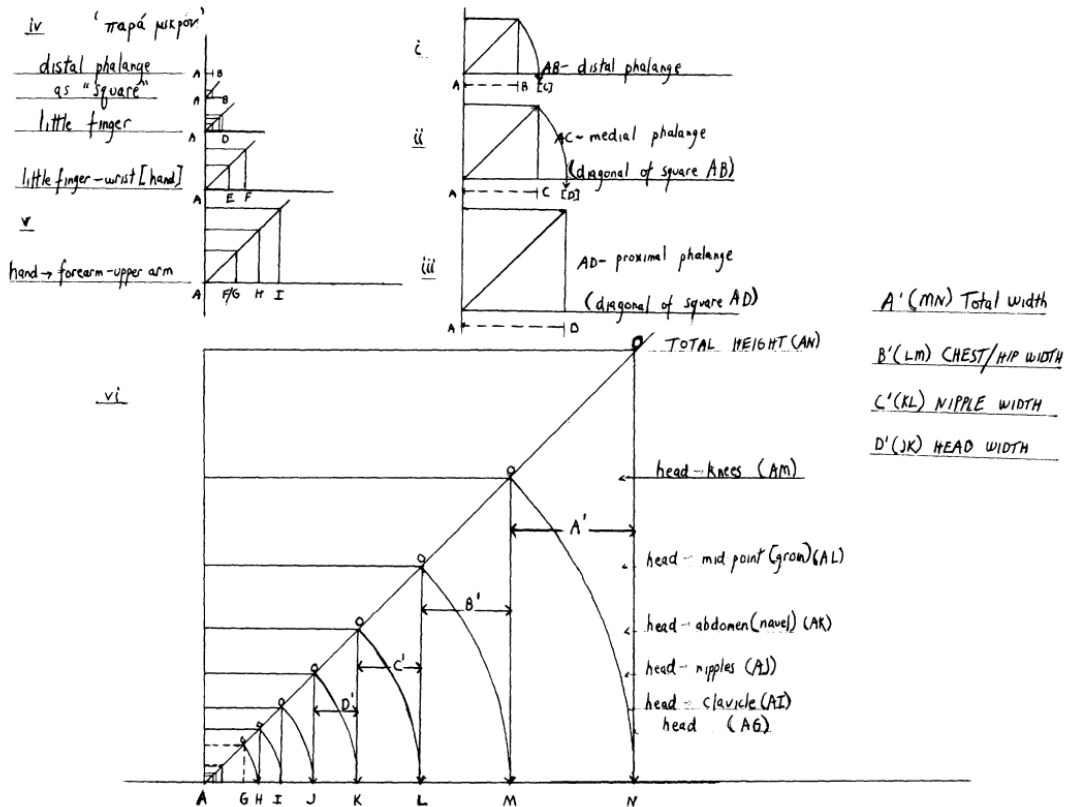Diagram of a human hand and geometric proportions based on the golden ratio.[81]

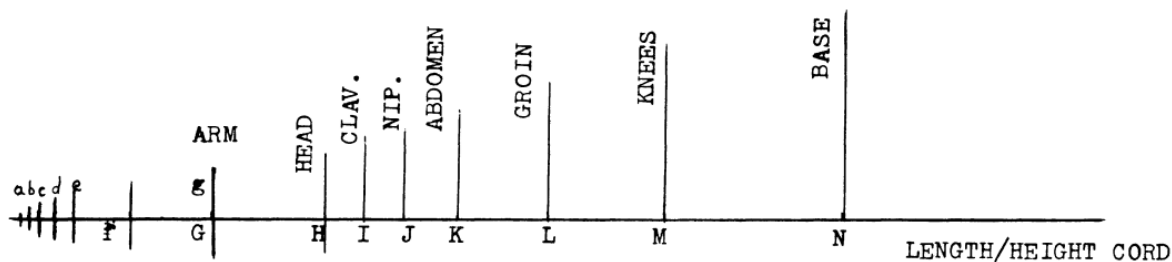Diagram of the relationship between a golden rectangle and a square.[82]

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[81] Tobin, 308
[82] Tobin, 309

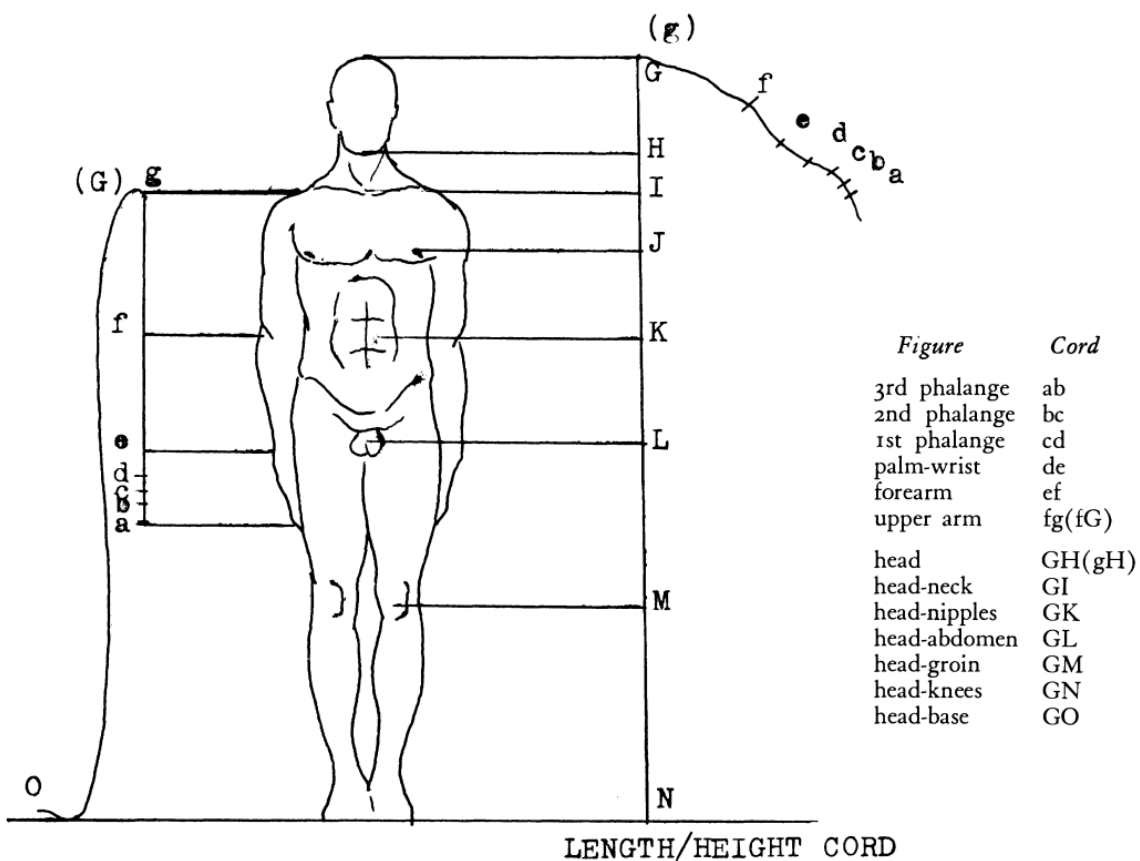Diagram of a hypothetical string divided into sections representing the length of different sections of the human body.[83]

Figure	Cord
3rd phalange	ab
2nd phalange	bc
1st phalange	cd
palm-wrist	de
forearm	ef
upper arm	fg(fG)
head	GH(gH)
head-neck	GI
head-nipples	GK
head-abdomen	GL
head-groin	GM
head-knees	GN
head-base	GO

Diagram of how a proportional string relates to the human body.[84]

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[83] Tobin, 311.

[84] Tobin, 311.

Palette of Narmer (obverse and reverse sides). ca. 3150-3125 B.C.E.
https://library.artstor.org/asset/AIC_950023.

Polykleitos, 5th cent. B.C. Doryphoros
Roman copy.
https://library.artstor.org/asset/ARTSTOR_1
03_41822000558146.

Lysippos. 1st century CE Roman copy after an
original bronze of c. 330 BCE. Apoxyomenos
(The Scraper). Place: Museo Pio-Clementino
(Vatican City).
https://library.artstor.org/asset/SCALA_ARC
HIVES_10310841181.

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