From Realism to Idealism: Ancient Greek Sculpture in the Classical Period

York H. Gunther and Sumetanee Bagna-Dulyachinda

Introduction

Art enables us to look into the soul of a civilisation. It is among humankind's earliest inventions, existing "long before a single farm was planted, before the first villages were built,"[1] giving us clues to forgotten lives and cultures. Of the various kinds of artworks, sculptures standout. Their construction from durable materials often facilitates their survival for millennia rather than centuries or decades. Their three-dimensionality allows them to be approached from multiple angles, distances and viewing conditions. And especially in the case of human sculptures, their corporeality invites not only the gaze but also the touch of a viewer drawn to a distant past. While the oldest human carvings date back tens of thousands of years, it is with the Ancient Greeks that sculptures of the human form reach a pinnacle of detail, craftsmanship and authenticity that has dominated the Western world for generations and that continues to serve as a standard for how art is produced, experienced and judged. This pinnacle, however, did not arise *ex nihilo*. It steadily developed through the Archaic (c750-508BCE) and the Classical Periods (c508-323BCE).

In this initial article, we focus on the developments in the sixth and fifth centuries BCE, outlining the gradual attainment of realism in human sculpture, and its rapid abandonment for idealism within a generation. In the subsequent sections of this article we consider two explanations. The first is

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[1] David Jacobs, 'Understanding Art', *The New Book of Knowledge*, at http://www.scholastic.com/browse/article.jsp?id=3753862. Accessed 10 October 2019.

a contemporary account offered by the neuroscientist Vilayanur Subramanian Ramachandran and the second is a Platonic-inspired account that, like the neuroaesthetic account, we argue is unsatisfactory. We conclude by suggesting a more promising explanation, one inspired by Aristotle and the Ancient Greek notion of *kalokagathia*, that we develop in a forthcoming companion article.

The Emergence and Abandonment of Realism in Ancient Greek Sculpture

While the first sculptures were "of small figures of men, gods and animals in clay or bronze,"[2] by the seventh century BCE the Ancient Greeks began creating larger stone sculptures of individuals both standing and seated. These sculptures are recognisable by their "Daedalic" features[3] (named after the father of sculpting in Greek mythology), which gained prominence during the early Archaic Period. What distinguishes the Daedalic style from earlier Greek styles is the presence of a triangular face and head attached to a geometric body. The rigid wig-like hair resting on the head along with the large, almond shaped eyes are made to look unnatural, perhaps deliberately so by the mischievous, iconic Archaic Smile. The smile appears on many figures of the period, usually thought to symbolise happiness, youth and well-being. Richard Near has suggested that the smile represents the aristocratic class' contentment or satisfaction, as they were referred to as *Geleontos*, "the smiling ones."[4] What is evident is that the smile is the first expression of individuality, a feature more detailed and lifelike compared to the sculpture's other traits.

An early example of this is 'Lady of Auxerre' (Figure 1), an unsupported limestone sculpture standing 75cm, dating to the mid seventh century BCE. Representing either a goddess or a figure dedicating herself to the gods,[5] her geometrically slim lower body is akin to a column covered by

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[2] 'Archaic Period (8th - Early 5th century BC)', *Classical Art Research Centre and The Beazley Archive*, at https://www.beazley.ox.ac.uk/sculpture/styles/archaic.htm. Accessed 10 October 2019.

[3] Nigel Spivey, *Greek Sculpture* (New York, NY: Cambridge University Press, 2013), p. 59.

[4] Richard Neer, *The Emergence of the Classical Style in Greek Sculpture* (Chicago and London: University of Chicago Press, 2010), p. 157.

a smooth, featureless dress, while her flattened and angular face sits beneath a heavy mop of rigid hair reminiscent of the Egyptian style. Yet, in both her stance and demeanor, there is life. Her upper torso reveals bare breasts and arms, with her left hand dropping stiffly to her side and her right hand pressed firmly to her heart in a votary gesture. And some have suggested the appearance of the mischievous Archaic Smile, which frankly looks more like a broad grin.

Figure 1 - 'Lady of Auxerre'

[5] Marie-Bénédicte Astier, 'The Lady of Auxerre, Masterpiece of the Daedalic Style', Louvre, at https://www.louvre.fr/en/oeuvre-notices/sculpture-woman-known-lady-auxerre. Accessed 10 October 2019.

Steven Zucker suggests that the sculpture anticipates the realism that emerges in the coming centuries: "One of the reasons that a figure like this fascinates art historians is because we know what happens next. She stands at the beginning of this long history of Greek sculpture, which reaches the level of brilliance that we've admired for thousands of years after."[6]

While little is known about the precise origin and purpose of 'Lady of Auxerre', during the Archaic Period full size human sculptures called *korai* and *koroi* (singular: *kore* and *kouros*) emerge. Influenced by the rigid and symmetrical style of the Egyptians, the *korai* are clothed sculptures of young females, associated with the goddesses Athena and Artemis, and reflect the importance society placed on youthfulness and devotion. Their male counterparts, the *koroi*, are associated with Apollo and reveal the importance that society began placing on the nude male body. This emphasis on nudity marked not only a departure from how most other Mediterranean cultures represented the male body, but it also departs from the way that the earlier Greeks may have regarded nudity, namely as a sign of shame and humiliation, for instance, of the lower classes, the defeated or the dead. Rather, male nudity began representing vitality and sexual desirability as well the importance society placed on athleticism, military heroism, civic virtue and even immortality.

Both *korai* and *koroi* were commissioned by aristocratic families and used either as offerings at temples or sanctuaries to the gods and to the dead, or they were used in cemeteries as grave markers, often as displays of social status and wealth. While they represented youthful males and females, their form and lack of detail suggest that they were not modeled on particular individuals. A representative example is 'New York Kouros' (Figure 2). Created around 580BCE, the marble sculpture stands 195cm tall. Because of its sheer size and free-standing form, it leaves one with a sense of overwhelming humanity, a figure larger than life. Although the left foot is in front of the right, thus vaguely suggesting the act of movement, the hips, shoulders and limbs are quite symmetrical and squared.

[6] Steven Zucker and Beth Harris, 'Lady of Auxerre', *Khan Academy* (2 October 2017), at https://www.khanacademy.org/humanities/ancient-art-civilizations/greek-art/daedalic-archaic/v/lady-auxerre. Accessed 10 October 2019.

The facial features share some of the characteristics found in 'Lady of Auxerre' aside from the hair, which is less heavy and rigid and which reveals subtle details in its braiding.

Figure 2 - 'New York Kouros'

In later *kouroi* and *kourai*, there is a gradual development toward realism, evident in 'Anavysos Kouros' (Figure 3). Commissioned around 530 BCE, the sculpture displays more natural proportions and features. The face, for example, is rounded with swelling cheeks replacing a stiff jaw and straight cheeks. The archaic smile—still present—is more detailed, the abdominal muscles are more defined, the v-line in the pelvic region is more curved, the calves are swollen, and the body in general more closely resembles that of a real human body. A similar evolution of style and detail can be seen in *kourai* during the transition from the middle to the early Archaic Period.

Figure 3 - 'Anavysos Kouros'

Considered the height of the Ancient Greek civilisation, the Classical Period spans over the fifth and fourth centuries BCE. Among the most significant dates marking the start of the period, 480BCE stands out not only because of the pivotal defeat by the Ancient Greeks of the Persians at the Battle of Salamis but because of the appearance of 'Kritian Boy' (Figure 4), arguably the first realistic sculpture of a human being in its detail, proportion, style and subject matter. Unlike the *kourai* and *kouroi*, sculptures began to portray athletes with closer attention paid to human anatomy. The muscles, flesh, joints and bone of 'Kritian Boy' are faithful to those of a real person, including a chest that looks as though it is ready to exhale and a relaxed stance that is familiar and natural. Hollowed out eyes would "have been inset ... with glass paste eyes, that would have been very lifelike, and ... commonly used

in bronze [sculptures].”[7] And lost is the paradigmatic Archaic Smile, replaced by subtle lips reflecting an austere expression, indicative of the so-called Austere Style. But perhaps the most noteworthy innovation is the use of *contrapposto*, literarily ‘an opposition of postures’. Achieved by adding a tilt to the head, pelvis and shoulders (the head is lowered and turned to the right, the right hip is lower than the left and the right shoulder lower than left), the weight is distributed primarily to the straightened trailing left leg. The resulting asymmetry creates a figure moving but still, tense but relaxed, made of marble but ever so lifelike.

Figure 4 - ‘Kritian Boy’

[7]Steven Zucker and Beth Harris, Kritios boy’, *Khan Academy* (5 January 2014), at https://www.khanacademy.org/humanities/ancient-art-civilizations/greek-art/early-classical/v/kritios-boy. Accessed 10 October 2019.

A decade later, the most realistic sculpture from the era is commissioned. 'Charioteer of Delphi' (Figure 5) stands 1.8m tall and depicts a charioteer in bronze standing in a chariot, which is being pulled by a team of horses (the horses and chariot have since been lost).

Figure 5 - 'Charioteer of Delphi'

While not used extensively in warfare due to Greece's rocky terrain, chariots were commonly used in races at the Ancient Olympics and Panathenaic Games. So popular was the sport that, to preserve their victories and fame, "winners ... were allowed to set up sculptures of themselves."[8] From head to toe, 'Charioteer of Delphi' reveals details not previously seen in Ancient Greek sculpture. There are groves around the headband in which a piece of silver is set. The eyes are made with glass and inlaid with silver, enabling them to reflect light, and the eyelashes themselves were meticulously crafted from tiny pieces of bronze. The Archaic Smile is replaced with three-dimensional lips and a chin focused on the exertion of the race. While clothed, the folds in the drapery of the robe are natural and free flowing rather than rigid and geometrical. Unlike the *kourai* and *kouroi*, arms no longer stiffly run along the side of the body, but are freely separated as someone attempting to balance himself during the tumult of a fast and dangerous race. And perhaps most noteworthy of all is the detail given to the feet. Rather than coarse grooves meant to suggest toes, it looks as if each toe was carved from directly observing an actual foot, as even toenails and phalanges as well as the metatarsal bones of the upper foot are visible. No longer a transitional sculpture, 'Charioteer of Delphi' represents the height of Classical Realism.

While other examples such as 'Artemision Bronze' (Figure 6) mark similar achievements, within a few decades realism was replaced by a more idealised aesthetic. Around 450BCE, the mathematician and sculptor Polykeitos created 'Doryphorus' or 'Spear Bearer', a sculpture over 2m tall (Figure 7). Developed as an exemplar of his theory of proportionality presented in his lost "treatise,"[9] *Canon*, the sculpture is an attempt to capture idealised beauty with mathematical precision. Although the exact formula is not known, Richard Tobin, Lois Fichner-Rathus and others, following Galen of Pergamon, suggest that Polykeitos used the Pythogorean Theorem to arrive at the length of body parts, from smallest to largest. For example, starting from the distal phalange of the little finger—which is assigned the unit 1—the length of the second phalange is identified with the hypotenuse of a right angle triangle, where both legs (the two non-hypotenuse sides) are

[8] Judith Swaddling, 'Ancient Greek Olympics Gallery', *BBC History* (17 February 2011), at http://www.bbc.co.uk/history/ancient/greeks/greek_olympics_gallery_04.shtml. Accessed 10 October 2019.

[9] Fred S. Kleiner, *Gardner's Art Through the Ages: The Western Perspective*, 14th edition (Boston, MA: Wadsworth Cengage Learning, 2014), p. 132.

each assigned the unit 1. Thus, using the theorem: $1^2 + 1^2 = 2$, where the second (medial) phalange is thus identified with the square root of 2 ($\sqrt{2}$), approximately 1.4. Building on this, the third phalange of the little finger is arrived at thus: $1.4^2 + 1.4^2 = 3.92$, the square root ($\sqrt{3.92}$), leaving us with a third phalange of 1.98 units long. The length of the palm will likewise result from the entire length of the finger (4.38), 4.38^2 (19.18) + 4.38^2 (19.18) = 38.36, the square root of which ($\sqrt{38.36}$) leaves us with a palm 6.19 units long, which when added to the entire length of the finger (4.38) gives us a hand that measures 10.57 units (from tip of the baby finger to the base of the wrist. By repeatedly applying the theorem, a sculpture eventually arrives at the ideal lengths of the forearms, upper arms, legs, torso, and thereby the entire ideal human body!

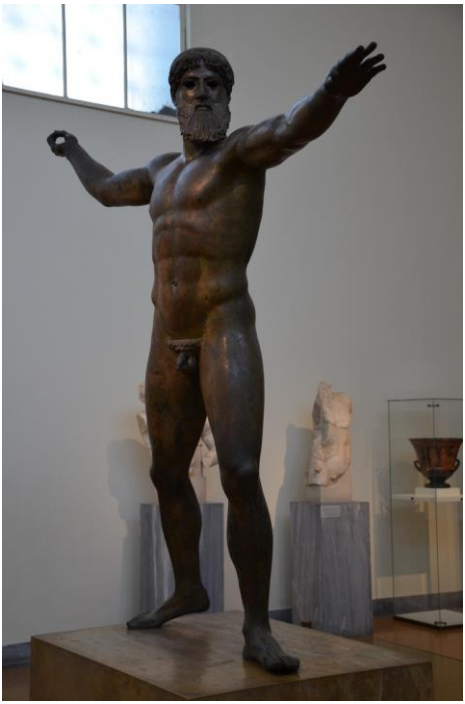

Figure 6 - 'Artemision Bronze' (Zeus or Poseidon)

Figure 7 - 'Doryphorus' or 'Spear Bearer'

'Spear Bearer' physically embodied this mathematical harmony. While Polykleitos' original bronze sculpture is lost, a marble Roman copy survives that embodies the idealised proportioned digits, limbs, torso, and so on. And although it builds on stylistic innovations of 'Kritian Boy' in its use of *contrapposto* and its rendering of muscle, flesh, joints and bone, there is a deliberate contrast between the quadrants of the body that further magnifies its dynamic character. The right leg bearing almost all of the sculptures weight (with the help of a tree trunk) is juxtaposed with the left leg, where the ball of the foot barely touches the ground. The bent left arm is tense as it holds a (missing) spear, where the right arm hangs effortlessly to the side (with the support of a bridge). The sharp contrast between the quadrants is recognisable from neck to feet in the muscles and flesh, joints and bone. And this exaggerated juxtaposition seems itself to be an idealisation.

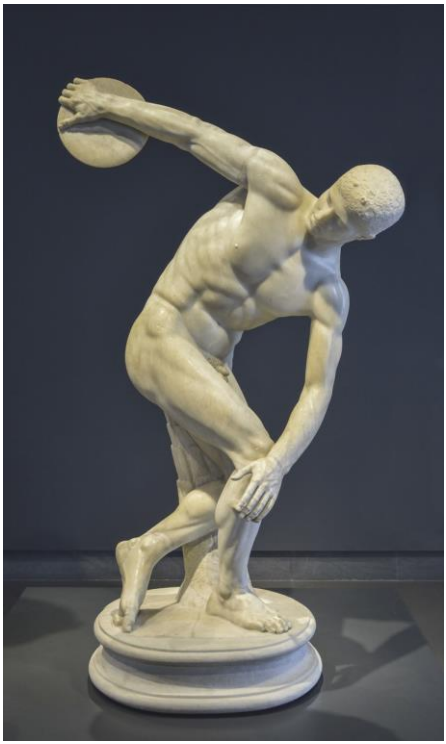

Figure 8 - 'Discus Thrower'

Other idealised sculptures such as 'Discus Thrower' (Figure 8), further depict this dynamic character through mathematical idealisation and exaggerated juxtaposition. But, the pinnacle of this style can best be seen in the can best be seen in 'Riace Bronze A' and 'Riace Bronze B', the two full-size bronze warriors discovered in 1972 off the coast of Southern Italy near Reggio (Figures I and J). While the precise date and origin of the sculptures is unknown, their use of *contrapposto* and lifelike details of the body and the face are immediately recognisable. The hollow eye sockets would have housed glass paste eyes typical of bronze sculptures of the Classical Period and, like 'Charioteer of Delphi' and 'Discus Thrower', the detail to muscles, flesh, joints and bone is evident. However, on closer inspection, "when you look again, you realize that there is something not quite right. Yes, it resembles a human being, very much so, but in fact it's not anatomically

possible for a man, however athletic, to look like this."[10] The legs, equal in length to the torso, are longer than normal. The definition and grooves in the back and chest are unnaturally deep and defined, and the back muscles are extraordinarily tense. Moreover, as "the channel of the vertebrae... descends into the cleft of the buttocks... [there is] no interruption from a coccyx, the bone at the base of the spine that helps us to sit down."[11] Around the waist, the Adonis belt is elongated and more defined than it is on a real human body. And although the sculptor is unknown,[12] there is evidence that the body proportions are modeled after Polykleitos' *Canon*.

Figure 9 - 'Riace Bronze A'

[10] Spivey in *How Art Made the World*, *BBC One* (2005) at https://www.dailymotion.com/video/x2dwnkv. Accessed 10 October 2019.
[11] Spivey, *How Art Made the World: A Journey to the Origins of Human Creativity* (New York, NY: Basic Books, 2005), p. 67.
[12] On this matter, Jennifer Alaine Henrichs writes: "Besides the two masters mentioned in relation to Olympia and Delphi [Phidias and Polyzalus, other possible] artists [include] Myron, the school of Phidias, Polykleitos, and followers of Polykleitos." Jennifer Alaine Henrichs, 'The Riace Bronzes: A Comparative Study in Style and Technique' (Master's Thesis: Louisiana State University Master's thesis, 2005), p. 9, at https://digitalcommons.lsu.edu/cgi/viewcontent.cgi?referer=https://www.google.co.th/&httpsredir=1&article=3354&context=gradschool_theses. Accessed 10 October 2019.

From Realism to Idealism

As David Spivey explains, the bodies of the Riace Bronzes were deliberately distorted for the sake of beauty, as it is not anatomically possible for a man, regardless of athleticism or dedication to his training regiment, to ever look like this. The Riace Bronzes, standing almost 2 metres tall, with idealised proportions, exaggerated juxtaposition and unachievable muscle definition and body lines, are more godlike than human.

Figure 10 - 'Riace Bronze B'

In this way we can recognise that, in a period of a few decades, after achieving realism in sculpture, the Ancient Greeks abandon it for idealism. From 'Lady of Auxerre' to the Riace Bronzes, the rapid development of styles and techniques that moved the Ancient Greeks from bodies that are static, rigid and solid to those that are dynamic and lifelike, and where the latter was ultimately achieved by abandoning realism, the question is: Why?

Supernormal Stimulus Theory: A Neuroaesthetic Account

While explanations for the transition from realism to idealism in Ancient Greek sculpture are scarce, V. S. Ramachandran offers a novel account. Informed by work in neuroscience, he attempts to uncover the universals that underlie the creation and consumption of art, in what he terms the "Eight

Laws of Artistic Experience."[13] The most relevant of these is based on the work of the biologist Nikolaas Tinbergen, dubbed 'Peak Shift' or 'Supernormal Stimulus'.

In an influential study of seagull chicks, Tinbergen observed the begging response of chicks pecking on their mothers' beaks.[14] What elicits this begging behaviour? Do the chicks recognise their mothers as individuals, distinguishing them from other adult female gulls? Do they indiscriminately peck at any adult gull's beak? Do they peck at anything whenever they are hungry? Do they do so only when they smell food? What Tinbergen discovered was that the gull chicks are stimulated by the red stripe or spot on the adult gull's beak: "The gull chick, soon after it hatches from the egg, begs for food by pecking vigorously on the red spot on the mother's beak."[15] He illustrated this with a simple test: by holding a yellow stick with a single red stripe on it before chicks, they consistently pecked at the stick even though no adult gull was present. And what is more, when a yellow stick with three red stripes was held before the chicks, they vigorously began pecking at it with even greater excitement. In fact, in such cases, the chicks would altogether ignore the stick with one red stripe in favour of the one with three red stripes. What is remarkable about this behaviour is that there are no adult female gulls with three red stripes, suggesting that there is an innate preference in seagull chicks for a color pattern that is not present or normal among seagulls. It is for this reason that Tinbergen dubbed the behaviour, '*supernormal* stimulus': what elicits the excited pecking behaviour, what the chicks clearly prefer, is something that is exaggerated rather than normal.

Various studies have identified behaviour consistent with supernormal stimulus in a diversity of animals including birds, insects and fish. It has been found that as long as the exaggeration takes place within a certain limit or 'lawfully' (e.g. 3 red stripes as opposed to 30), animals will prefer a supernormal stimulus to a normal one. The psychologist Deidre

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[13] Vilayanur Ramachandran and William Hirstein, 'The Science of Art: A Neurological Theory of Aesthetic Experience', *Journal of Consciousness Studies*, vol. 6, nos. 6-7 (1999), p. 33.

[14] N. Tinbergen and A. C. Perdeck, 'On the Stimulus Situation Releasing the Begging Response in the Newly Hatched Herring Gull Chick (Larus Argentatus Argentatus Pont.)', *Behaviour*, vol. 3, no. 1 (1951), pp. 1-39.

[15] Ramachandran, *The Tell-Tale Brain: Unlocking the Mystery of Human Nature* (London: Windmill Books, 2012), p. 210.

Barrett, in fact, applies Tinbergen's theory to an array of modern human behaviours, including obesity, pornography, the hysteria in news and even modern warfare.[16] Ramachandran himself considers the case of a skilled cartoonist who specialises in drawing caricatures. When drawing Richard Nixon's face, for example, he may find features that distinguish his face from the faces of other people. "What he does (unconsciously) is to take the average of all faces, subtract the average from Nixon's face (to get the difference between Nixon's face and all the others) and then amplify the differences to produce a caricature."[17] In this way, what is inviting and humorous (i.e. 'stimulating') about the caricature is the amplified or exaggerated features, in much the way that what stimulates the gull chicks is an exaggerated number of red stripes. In fact, according to Ramachandran, "All art is caricature."[18]

Consider the sculpture from the Indian Chola period of the goddess Pavarti (Figure 11). Ramachandran believes that this sculpture is a "caricature of the female form": "Look at the Chola bronze—the accentuated hips and bust of the Goddess Parvati and you will see at once that this is essentially a caricature of the female form."[19] The artistic amplification produces a 'super stimulus' to which, Ramachandran conjectures, certain brain circuits respond. And in the same way, Ramachandran has an explanation for why the Ancient Greeks, within just a few generations, abandoned the realism of 'Kritian Boy' in favour of mathematical idealised proportions, unrealistic bodily features and exaggerated postures of the Riace Bronzes. Realism was abandoned, quite simply, because it was too boring! As Ramachandran summarily concludes, "If art's about realism, why do you need art when you can go around looking at things?" As such the ultimate goal of art is not to represent reality as it is, but to "enhance, transcend, or indeed even to distort reality."[20] The Ancient Greeks thus distorted their works of art lawfully in order to exaggerate the brain's aesthetic response to male bodies.

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[16] Deirdre Barrett, *Supernormal Stimuli: How Primal Urges Overran Their Evolutionary Purpose* (New York: W.W. Norton and Company, 2010).
[17] Ramachandran and Hirstein, 'The Science of Art', p. 18.
[18] Ramachandran and Hirstein, 'The Science of Art', p. 18.
[19] Ramachandran and Hirstein, 'The Science of Art', p. 18.
[20] Spivey in *How Art Made the World*.

Figure 11 - 'Chloa Bronze' (Pavarti Goddess)

There is something refreshing about Ramachandra's proposal. The study of art and aesthetics has, to be sure, been in the hands of art historians and philosophers who, often enough, offer vague explanations that are generally not supported by tested or testable theories. Ramachandran offers an explanation, which, as he insists, "can be tested experimentally."[21] But can it? What would such a test look like? The tests performed on birds, insects and fish supporting the Supernormal Stimulus Hypothesis seem at their heart rudimentary compared to the kind of tests that would have to be performed on artists and art-going audiences. Setting aside the many variables that

[21] Ramachandran and Hirstein, 'The Science of Art', p. 32.

would have to be taken into account, such tests would have to be conducted on modern human beings, the results of which would be inferred to apply to past human beings. Of course, all of this may be possible and we might use the anecdote about Polykleitos relayed by the Ancient Roman historian Aelian to serve as the basis for such an experiment:

> Polykleitos made two statues at the same time, one which would be pleasing to the crowd and the other according to the principles of his art. In accordance with the opinion of each person who came into his workshop, he altered something and changed its form, submitting to the advice of each. Then he put both sculptures on display. The one was marveled at by everyone, and the other was laughed at. Thereupon Polykleitos said, 'But the one that you find fault with, you made yourselves; while the one that you marvel at, I made.'[22]

A more fundamental objection to Ramachandran's account is its failure to explain why Ancient Greek artists—or for that matter any artists—concern themselves with creating realistic sculptures in the first place. If every human being (artist and viewer) is born with an innate preference to exaggerate the human form (presumably among countless other things they are stimulated to exaggerate), why was 'Kritian Boy' or 'Charioteer of Delphi' ever created? With his sole focus on explaining why some sculptors exaggerate the human form, Ramachandran fails to explain why others do not. (The same could be said of portrait artists, some of whom remain faithful to realism, while others opt to draw caricature portraits.) And even if we implausibly grant that the idealised sculptures (like the caricatured portraits) qualify as great works of art while their realistic counterparts are merely steppingstones to great art, it seems evident that neuroscience has relatively little to tell us. To explain the suppression of this innate, supernormal stimulus drive, it seems inevitably that we will have to turn to social and historical explanations. But even if this is granted, it reveals an entrenched bias against such explanations, namely

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[22] Kleiner, *Gardner's Art Through the Ages*, p. 132. There are in fact contemporary studies that identify human facial features such as eyes and lips that are frequently exaggerated in artworks, features closely connected to physical attractiveness. See Marco Costa, 'Aesthetic Phenomena as Supernormal Stimuli: The Case of Eye, Lip, and Lower-face Size and Roundness in Artistic Portraits', *Perception*, vol. 35, no. 2 (2006), pp. 229-246. Even the *contrapposto* pose has recently been suggested to be more attractive to viewers. See Farid Pazhoohi, Antonio F. Macedo, James F. Doyle and Joana Arantes, 'Waist-to-Hip Ratio as Supernormal Stimuli: Effect of Contrapposto Pose and Viewing Angle', *Archives of Sexual Behavior*, vol. 48 (2019).

relegating them to explaining why something *does not* happen rather than why it does. As the sociologist David Bloor points out:

> The general structure of these explanations stands out clearly. They all divide behaviour... into two types: right and wrong, true or false, rational or irrational. They then invoke sociological... causes to explain the negative side of the division. Such causes explain error, limitation and deviation.[23]

In this case, we can only assume that Ramachandran would begrudgingly acknowledge the need for social and historical explanations, at the very least to explain the suppression of our innate drive to exaggerate, though he remains conspicuously silent on the matter.

But the inadequacy of the neuroscientific account is evident even when we focus on the idealised sculptures like 'Spear Bearer' and the Riace Bronzes, ones created in an environment presumably free from negative, suppressing social causes. As Ramachandran admits, just what features of a human body are exaggerated and to what extent they are exaggerated is closely connected to the norms and values of a culture. Though the first question we should ask is, *why* (for what purpose) does an artist exaggerate the features of a human body to begin with? Caricatures of Nixon, for example, are more often than not created to satirise the disgraced president, portraying him as a duplicitous and flawed man. But caricatures might also be created to show a reverence for an individual, or hostility, attraction, fear, love, defiance, and so on. What is more, the Indian sculptor of the goddess Pavarti, in exaggerating her hips and breasts as he does, is perhaps both revering and expressing the sexual desirability of the goddess. But the very choice of what features one exaggerates (and to what extent) and what features one renders in a mundane or understated manner are themselves closely connected to a society's norms and values of desirability. It is easy enough to imagine one society that associates sexual desirability with a voluptuous Rubenesque body type, another with a tall and slim runway model body type, and yet another with a brawny muscular body type.

I suspect that Ramachandran may concede these points and simply

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[23] David Bloor, *Knowledge and Social Imagery* (Chicago: University of Chicago Press, 1991), p. 9. A similar explanatory pattern can be seen in Ekman when he appeals to Display Rules which are social and which explain why the innate universal emotional expressions are in many cases masked, amplified, de-amplified or otherwise obstructed by an individual. Paul Ekman and Wallace V. Friesen, 'Constants Across Cultures in the Face and Emotion', *Journal of Personality and Social Psychology*, vol. 17 (1971), pp. 124-29.

emphasise that what interests him are just the universal laws that underpin the production and consumption of art across cultures. As he admits:

> to assert there might be universal laws of aesthetics and art does not in any way diminish the important role of culture in the creation and appreciation of art. Without cultures, there wouldn't be distinct styles of art such as Indian and Western. My interest is not in the differences between various artistic styles but in principles that cut across cultural barriers, even if those principles account for only, say 20 percent of the variance seen in art.[24]

But the admission is nevertheless beside the point. The question before us is whether a neuroscientific explanation can adequately explain the transition from realism to idealism in Ancient Greek sculpture during the early Classical Period. The claim that, like ourselves, the artists and viewers of the time had an innate preference for exaggeration, even if true, is no more an explanation for the transition than the fact that human beings have opposable thumbs and the power of vision. While both facilitate the creation of sculptures, neither is something we would cite in a serious explanation for why the Ancient Greeks abandoned realism in sculpture in just a generation. We might as well explain the emergence in the twentieth century of the science fiction genre in literature as the product of Supernormal Stimulus or, as a rhetorician would dub it, hyperbole. There is something quite underwhelming about any such appeal, and thus it would seem that the neuroscientist will need the help of the art historian and philosopher (as vague as their explanations can be) after all.

Towards the Forms: A Platonic Account

A useful place to start is with Plato's *Republic* and its interpretation of art. In book seven, Plato invites us to imagine a scenario in which prisoners in a cave are forced to face the innermost cave wall. There they see shadows, and it is presumably only these shadows and other prisoners that they are aware of due to the chains that bind their necks and legs, which prevent them from turning around. They thus fail to recognise that, behind them, a cast of puppets are controlled by puppeteers who work before a fire to create their elaborate illusion. While few prisoners will ever escape this predicament, on occasion one will be set free (somehow, by someone). And after realising that the sum of her past experiences is an illusion, that the shadows are mere byproducts of a ruse perpetrated by the puppeteers, the free prisoner will gradually make her way to the mouth of the cave where she will at last, after

[24] Ramachandra, *The Tell-Tale Brain*, p. 199.

considerable effort and pain, come to see the things in the world as they *really* are. However, rather than bask in this newly discovered reality alone, Plato suggests that she would return to the cave in an attempt to free other prisoners, a task that would be dangerous. The prisoners, recognising that this newly freed detainee can no longer see well in the dark (because her eyes have adjusted to the light outside of the cave) and now speaks of things that they find incredible and impossible, would see her as a threat to their well-being and their own prized conception of reality and thus would not hesitate to kill her if she tried to release anyone else.

The allegory is one of several ways that Plato attempts to contrast the material world with the realm of Forms. While everything inside of the cave is considered part of the material world, only a philosopher can come to discover the higher reality that exists outside of the cave. Utilising critical thinking (rationality alone) the philosopher comes to grasp the genuine objects of knowledge. These are eternal, unchanging, ideal *and* abstract. Material objects, by contrast, are tangible and thus can be perceived. But because of their temporality, impermanence and imperfection, they are merely the objects of belief rather than of knowledge. To grasp the Forms, the philosopher must abandon his dependence on perception (admittedly an ironic recommendation given the allegory's use of images of light including the sun) and use rationality exclusively. What seems evident here is that Plato is assuming a mathematical paradigm of knowledge. For example, a definition of a square in geometry does not rely on the observation, experimentation or testing of square-shaped objects around us. Rather the definition (roughly, a figure on a two-dimensional plane with four equal length straight sides forming four internal right angles) is arrived at by reasoning about the geometrical object itself. No perception of the Form Square-ness is actually possible given that anything we see (or touch) will ultimately be an imperfect copy of this eternal, unchanging, abstract ideal. And this, according to a liberal reading of Plato, is true of any genuine object of knowledge, whether in mathematics, science, politics, ethics, aesthetics, and so on.

And what is art in the allegory? Where the Forms are the objects outside of the cave (the sun being the highest of the Forms: Goodness) and the material objects are the puppets inside of the cave, the *content* conveyed by artworks is nothing other than the shadows on the innermost cave wall (which itself represents the medium of art in general). In other words, while the material objects are imperfect copies of Forms, artworks themselves are

imperfect copies *of* imperfect copies *of* Forms. This leads Plato to take a rather hostile view of art, which he views fundamentally as mimetic or representational. By its very nature (as an imperfect copy of an imperfect copy of a Form), art is epistemically moving us in the wrong direction.[25] Rather than move us toward knowledge of Forms, art is moving us away even from the material world. The prisoners as the art-consuming audience live in illusion rather than in belief or knowledge. Moreover, the power of poetry (that is, the dramatic arts) in particular is especially corrupting to the character of human beings.[26] Rather than promote the use of reason, audiences are transfixed like emotional addicts, humans that become incapable of utilising rationality and therefore escaping the chains of illusion. And lastly, there is something quite deceptive about artists themselves.[27] As imitators they represent themselves as having knowledge that they in fact do not have. A poet describing a battle scene has no actual understanding of battles, just as a painter depicting a table has no real understanding of how tables are made. Unlike the general and the carpenter who can teach their respective skills, the poet and painter have nothing about the material world, let alone the realm of Forms, to teach.

While Plato's discussion of art in the *Republic* focuses on poetry and painting (and to some extent on music and dance), his description and concern about art might be generalised to sculpture, particularly the century that culminated in the realism of 'Kritian Boy' and 'Charioteer of Delphi'. As representational artists striving to copy the human body (especially the male nude), sculptors developed not only the techniques, but also the will to represent the body in increasingly realistic ways, from early miniature carvings of humans, through to 'Lady of Auxerre', 'New York Kouros', 'Anavysos Kouros', and finally 'Kritian Boy' and 'Charioteer of Delphi'. In a sense we can see this not merely as an artistic endeavor but as an epistemological one: an attempt, within the medium of stone, marble, bronze and so on, to understand through representation the outward form of an actual human body, an understanding that ultimately reached its realistic limits. In short, the movement toward realism might, within Plato's rich philosophy, be seen as a gradual attempt by the puppeteers to cast shadows that are

[25] Plato, *Republic*, 595a-602b. E. Hamilton and H. Cairns, H. eds, *The Collected Dialogues of Plato* (Princeton, NJ: Princeton University Press, 1982).
[26] Plato, *Republic*, 602c-605c.
[27] Plato, *Republic*, 598b-601a.

increasingly realistic. But even if 'Kritian Boy' can be regarded as the perfect copy (shadow) of an actual human body, it remains imperfect given that real human bodies are themselves imperfect copies of the Form of Human Body. (One might even add that the absence of female nude sculptures until the middle of the Classical Period was driven by the commitment that male rather than female bodies are closer to the ideal human body.) But where to go from here?

Sculptors, unlike philosophers or mathematicians, are constrained by their representational medium. But it is not just the material with which they work that limits them (stone, marble, bronze, and so on) but the very goal of representing a human being in the material world that prevents them from grasping the Form of Human Body. Why? Ultimately it is because of their dependence on perception over thought in its most pure, mathematical sense. To transcend these limitations the sculptor must become a philosopher (mathematician). For as Plato himself admits in the *Philebus*, "If one were to remove from any of the arts the elements of arithmetic, proportion, and weight, what would remain of each would be negligible indeed."[28] And this observation seems to be one that Polykleitos himself made. To put it in Platonic terms: Polykleitos' mathematical idealisation of the 'Spear Bearer' is an attempt to overcome the limits of perception and open up a rational pathway to the realm of Forms, specifically to the Form of Human Body. Just as Squareness is arrived at through reason rather than observation, Polykleitos gets to the ideal human body through mathematical reasoning. And thus the abandonment of realism in favour of idealisation of the Form of Human Body was an attempt to get closer to a reality unattainable by perception.

The advantage the Platonic account has over Ramachandran's is that it explains why sculptors not only abandoned realism in favour of idealism but why they strove for realistic sculptures in the first place. Unaware of any reality apart from the one available to their senses—or at least, unsure of how such an ideal reality could be represented—sculptors strove to create artworks that reflected reality as faithfully as they saw it. Around the time that their sculptures became realistic, a new insight occurred to them, namely that the developing fields of mathematics and geometry actually offered a way of capturing not the world as it materially appears to them but a transcendent reality that is attainable only through reason. And thus the

[28] Plato, *Philebus*, 55e.

sculptor becomes a philosopher (mathematician).

The Platonic explanation, however, suffers from a vital flaw. There are, of course, the problems with the Theory of Forms itself that Aristotle as well as Plato himself raised, for example, the challenge of explaining how material objects could 'participate' or 'copy' an abstract entity and the so-called 'Third Man Argument' that argues that if there is one Form of a certain kind there must be an infinite number of Forms of that kind. The problem that bears more specifically on the Form of Human Body concerns the employment of mathematics. There are countless ways of utilising mathematics to idealise the human body. In addition to the Pythagorean Theory, one might employ the Golden Ratio, the Fibonnaci Sequence, fractal geometry or simply a perfect square and circle as Galileo does in his drawing of 'Vitruvian Man'. But even the Pythagorean Theory itself could be applied in numerous ways. For example, rather than build the proportion of each body part starting from the distal phalange, why not start with the eye and move to the mouth and then the ears and nose, and then move to the index finger, and then the distance from the eyes to the chin, and so on. Each of these mathematical uses will yield different ideals of the human body. The problem is that there is no 'rational' way of choosing between these many mathematical ideals. Moreover, how could we ever judge whether a given ideal is too different from a normal human being? (Can an ideal be too ideal?) What is inevitable is that these issues could only be resolved by appealing to the visual preference of an individual or culture. In short, reason must eventually be abandoned in favour of perception!

But the fundamental problem with both explanations is their shared commitment to a single, fixed ideal of the human body. Ramachandran is convinced that we innately prefer exaggerated bodies (within certain rule-bound limits) and thus his ideal is fixed biologically. The Platonic explanation, on the other hand, is committed to a single metaphysically fixed Form that is eternal, unchanging and abstract. Neither theory thus acknowledges that the ideals are flexible and responsive to human activity and culture.

Conclusion: *Kalokagathia*

The ideals of the human body expressed through 'Spear Bearer', 'Discus Thrower' and the Riace Bronzes were not the product of biological hardwiring or attempts to represent metaphysical Forms but they were the product of human activities that the Ancient Greeks valued. What we will

argue in the subsequent companion piece to this article is that social and historical changes that occurred during these late Archaic and early Classical Periods shaped the norms and ideals. While the physicality involved in the training and participation of athletes and warriors certainly stands out, there were in fact numerous activities that were valued and that brought with them conceptions of excellence. Excellence, however, was not defined biologically or metaphysically, but through a normative balance between the body and mind. In fact, this synchronicity between outward physicality and internal moral psychology was dubbed '*kalokagathia*': literally the beautiful and virtuous. It is this idea we intend to expand upon.