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Pythagoras, Byzantium and the Holiness of Beauty

Janet Rutherford

This essay explores the place of icons in the theology and worship of the Orthodox churches, through an examination of the doctrinal conflicts that formed Byzantine Christianity. It proceeds to outline the history of some principles of Pythagorean aesthetics, and to posit an explanation of how their use survived in the transmission of some Byzantine and Russian icons.

‘Each historical branch of worldwide Christianity received a particular gift which characterises it: Catholicism, that of organisation and authority; Protestantism, the moral gift of honesty – of intellect and life; but to the Orthodox ... it was given to see the beauty of the spiritual world.’¹ So Sergei Bulgakov summarized the dominant emphases of the three main branches of Christianity from an Orthodox perspective; and I think that in his assessment of us Latins we would recognize at least a little of ourselves in his description of our traditions. Authority and moral integrity are at the end of the day attributes comprehensible to everyone, and Orthodox theologians display a good grasp of what Latin Christianity is about – sometimes referring to us as the ‘two sides of the Augustinian coin.’ But this quotation serves to remind us that the opposite is not generally the case; we Latins are perennially accused by Orthodox of not understanding them at all. And paradigmatically, the central place of icons in Orthodox life, doctrine and worship, their sacramental status as forming a physical interface between the material world and heaven, is something that even as we think we have understood it, eludes us. So I would like to explore beauty, holiness and iconography in the Byzantine tradition in an attempt to come a bit nearer to sharing the Orthodox vision of spiritual beauty. In the process I will suggest that our inability as western Christians to understand eastern Christianity’s theology of beauty springs from a philosophical and aesthetic divergence that took place very early on in the histories of our devotional cultures. The art and architecture of both east and west, as well as theologies of beauty, are manifestly built upon Pythagorean, Platonic and neo-Platonic foundations; but these foundations have equally manifestly produced different sorts of religious

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1. Sergei Bulgakov, *The Orthodox Church* (Paris: YMCA, 1935), 25.

art, whose theological basis and liturgical use also differ. I will argue that this stems in part from the fact that east and west have drawn on different aspects of the Greek aesthetic tradition in the formation of religious art.

Unravelling the philosophical and theological basis of Orthodox aesthetics is not a task for the faint-hearted. In western scholarship, there is a persistent division of labour between the theologian and the art historian which hinders theological understanding of eastern religious art. Although there are many art historians working in the field of Byzantine and Orthodox iconography, few of them are concerned with relating their subject matter to ancient philosophies of beauty, or even to the liturgical and devotional roles eastern icons have. But when one turns to the great Orthodox theologians of beauty – Bulgakov, Berdyaev, Evdokimov, etc. – one encounters other, equally frustrating problems. Of the many Byzantine legacies to Orthodoxy, one of the most profound, and profoundly non-western, is its perception of time and hence of history. The Orthodox liturgy itself is in essence an eschatological preview, in which worshippers of the present join in company with the saints of all ages (in the person of the icons), praising God in a foretaste of the world to come. This homogenized perception of the holiness of all ages present together as an eternal reality was heightened by the development in the course of eastern church history of a 'theology of repetition' of sayings of the Fathers which, in emphasizing the single voice with which they speak of eternal truth, also blurred distinctions of historical context, and hence of the passage of time.² These things, in combination with the Byzantine dating system – which was based on salvation history – exercises in eastern theology a steady pull away from historical chronology as we are used to it in the west. The effect on Orthodox theological writing tends to be confusing. Plato, the Fathers and Orthodox saints are all jumbled happily together with philosophers and writers of all ages, east and west, as illustrating eternal truths. There is an implicit assumption that the wisdom of each is that of the others (since, after all, truth is eternal and unified). And though it is exhilarating to be told, for example, that the compositional principles of iconography are *spermatikoi logoi*, the plodding Latin mentality persists in wanting to know exactly what this boils down to. So I have over the years made my own journey through the fathers in pursuit of *spermatikoi logoi*, starting with the Christian Platonists of Alexandria, and following through Evagrius Monachos, Diadochos of Photike, Maximus Confessor, and John of Damascus to Gregory Palamas and the Hesychasts of Mount Athos. But the theological connection between all these writers and the actual art of Orthodox iconography is not an obvious one (though Orthodox theologians tend to assume that it is). In developing the thesis I will present here it is therefore significant that I have been indebted to two artists, who were also mathematicians.

2. See Hubert Cunliffe-Jones, *A History of Christian Doctrine* (Edinburgh: T. & T. Clark, 1978), 184f.

Where to begin this story, 'mystical,' aesthetic and geometric – which begins in Egypt and ends up in 14th-century Russia? Since our goal is to understand something profoundly Byzantine and Orthodox – the place of icons in the theology, liturgy and devotional life of Orthodoxy – it is best to begin by clarifying what Orthodox Christians believe defines Orthodoxy: the doctrinal victory of the veneration of icons after the upheavals of iconoclasm.

The seventh and last ecumenical council recognized by Orthodox churches, Nicaea II (787), is regarded by Orthodox as marking the Triumph of Orthodoxy in that it affirmed the doctrinally necessary place of icons in Christian worship. Although outbreaks of iconoclasm continued for nearly sixty years after the Council, it is nevertheless a convenient marker between the recognizably patristic Christianity of the pre-iconoclastic period, and the fully mature Byzantine (and 'Orthodox') church which succeeded it. For nearly 120 years the Byzantine Empire was torn apart by an imperially sponsored campaign of iconoclasm far more sustained and all-encompassing than anything known to western church history. Not only was the iconoclasm so prolonged, virulent and thorough that few icons from the earlier period now survive (and the earliest of these is 6th-century), but more importantly, the doctrinal battle it engendered was far more complex and developed than any western counterpart. It was very soon recognized that the controversy was fundamentally Christological in character: what does it say about the human nature of Christ if he cannot be portrayed as a man, but can only be materially represented by the eucharistic host, as the iconoclast emperors claimed? The fact that these emperors had decidedly monophysite tendencies was not lost on those who came to the theological defence of icons, particularly John of Damascus and Theodore Studios. If 'what is not assumed cannot be saved,' what does it say about humanity's salvation if, as the emperors claimed, Christ's humanity was so divine that it cannot be portrayed? What hope indeed has the whole of the created order of being transformed into the new creation, if Christ did not assume and sustain ordinary matter in the Incarnation?

It is a great strength of the Orthodox tradition to be keenly alive to the Trinitarian and Christological implications of any question. The latent hostility of the iconoclasts towards material creation developed into an explicit fight between the words of Scripture and the artistic depiction of Biblical events. Inherent in this was an argument about the sacramental: to the iconoclasts only Baptism and the Eucharist were truly sacramental, and God is revealed only through the words of Scripture. For the iconodules the Incarnation resulted in the re-sacralization of material creation after the fall, enabling material objects apart from the Eucharistic elements to convey the presence of God. Equally, from the time of the Incarnation it is no longer merely the words of Scripture which reveal God to us: the ultimate and perfect revelation of the Father was in the material Incarnation of the

Son, who not only spoke to us but also lived and dwelt and went about among us – who had a human face which can be portrayed.

This was put very clearly by Theodore Studios: 'from the moment Christ is born of a mother who can be depicted, he naturally has an image which corresponds to that of his mother. If he could not be represented by art, this would mean that he was not born of a mother who can be depicted, but was born only of the Father and that he was not Incarnate. But this contradicts the whole divine economy of our salvation.'³ John of Damascus also says: 'If you have understood that the Incorporeal One became Man for you, then it is evident that you can portray his human image. Since the invisible one became visible by assuming a human body, you can make a picture of him who was seen. Since he who has neither body, nor form, nor quantity nor quality, who transcends all grandeur by the very excellence of his nature, being of divine nature assumed the condition of a slave, and so reduced himself to quantity and quality by clothing himself with human features; then paint on wood and present for contemplation him who desired to become visible.'⁴

In the course of the debate increasing stress was put by the iconodules on the transformed status of matter which resulted from the Incarnation. As John of Damascus wrote: 'I do not adore matter itself, I adore the Creator of all matter who became matter for my sake, who deigned to inhabit matter (our flesh) and who through matter accomplished my salvation.'⁵ It is also clear that as a result of this awareness of matter's participation in the Incarnation, it was increasingly felt that the Incarnation brought the Father's presence into creation in such a way that the whole of the heavenly realm became manifest on earth. St Germanus, an early defender of icons, wrote that 'with the coming of Christ the whole of heaven descended to earth and the Christian soul was forever seized and held by this vision.' This understanding is still held in present-day Orthodoxy, as witnessed in Pavel Evdokimov's statement: 'Isaiah uttered the classic cry of the Jewish soul: Oh that you would tear the heavens open and come down ... (Is 64:1). This cry expresses the need for a spatial dimension. It is the spatial element which waits for and calls out for the Incarnation.'⁶

We are here approaching territory that is not so familiar to the Latin west. Indeed, although we are taught to regard the schism of 1054 as marking the parting of the ways between eastern and western Christendom, that is to look at Christendom primarily in terms of institutional authority. In terms of liturgy and religious culture generally, it is really the iconoclastic controversy which marks the development of eastern Christianity into something distinct from that of the west. The implications of the theological defence

3. Theodore of Studios, *Refutation* III: 2.

4. John of Damascus, *Defence of the Holy Icons*, III: 2.

5. John of Damascus, *Defence of the Holy Icons*, I: 16.

6. Pavel Evdokimov, *The Art of the Icon: A Theology of Beauty* (Redondo Beach, CA: Oakwood, 1990), 33.

of icons on the Byzantine liturgy, for instance, were enormous. Equally importantly, the status of the secular clergy, who supported imperial iconoclasm, was irrevocably damaged in the eyes of the faithful, and the monasteries, which had defended the icons despite imperial persecution (often, ironically, from the safety of Islamic territory) have from that time been perceived by Orthodox as the true centres of spiritual authority within the church. The common perception among Orthodox that monastic asceticism and prayer safeguard the doctrinal orthodoxy of the Church is far more radical than the lip service paid in the west to the rule of prayer being the rule of faith.

The most concrete result of the Triumph of Orthodoxy in Second Nicaea was the belief that icons are not only permissible in Christian worship, but necessary, a constant affirmation of the humanity of Christ, and of the possibility human beings have of becoming holy through his Incarnation. It is certainly true that the grit of iconoclasm was vital in forming the pearl of Byzantine iconographic theology. Before iconoclasm icons had many and varied functions (ranging from the didactic to the frankly magical) and their rendition was determined more by convention than by theology. In having to formulate their defence, not only was their theological status articulated, but their design and use became strictly defined. As Hugh Wybrew has pointed out, 'At the beginning of the controversy the defenders of icons emphasized their educational and evangelical value: images represent pictorially what the Scriptures describe in words [hence the assertion that icons are pictorial gospels and the Gospels are verbal icons]. By the end of the controversy there was far greater stress on their sacramental character as making present to the worshipper what they represented. Icons had come to be seen as a means of grace, enabling the worshipper to stand in faith before the person depicted and to converse with him or her.'⁷

One of the most characteristic things about Orthodoxy is that icons in this sacramental character are incorporated into the architecture of the church. To quote Hugh Wybrew again: 'Three basic principles of church decoration governed the development of iconography after the victory of the icons. The image must first be made so as to make clear its identity ... with its prototype: persons and events must be clearly recognizable ... [they] had further to be represented frontally, so that there could be a real meeting between the image and its prototype, and the beholder ... Finally, each image had to occupy its proper place in the hierarchical order of things: first Christ, then his Mother, then the angels and saints in their due order of precedence ... From this time on it is less than adequate to speak of church decoration, for the mosaics or frescoes applied to the building formed an integral part of the sacred space into which the worshipper entered for the celebration of the sacred mysteries ... The Liturgy itself came to be understood as a kind of icon.'⁸

7. Hugh Wybrew, *The Orthodox Liturgy* (London: SPCK, 1989), 105.

8. *Ibid.*, 105, 103.

This question of sacred space, which we have already encountered in the quotation above from Evdokimov, cannot be overestimated in understanding Orthodox worship. I remember my fascination watching the Russian Orthodox congregation in Varese, Italy, prepare to celebrate the Liturgy in a meeting room in the parochial offices of the Catholic parish church. A table was set up for the altar, upon which the appropriate icon was put. In front two plastic chairs were set to form the entrance to the sanctuary, and on them were placed icons of the Mother of God and Christ, forming the Royal Doors through which the priest would move in the course of the Liturgy. At one side a table with votive candles was set with its proper icon. A few more plastic chairs were set out for the elderly and mothers of infants; and thus sacred space was constructed – literally, out of saints; the room became an Orthodox church, and the Liturgy could proceed. The saints for Orthodox are present through the icons at every celebration of the Liturgy as the whole cloud of witnesses gathered before the throne of God. As Evdokimov says: ‘The saints, even after they have departed from us, continue in their own way to be effective members of the Church; they surround us with their prayers, and represent a living link between heaven and earth ... In praying to the saints, we pray to Christ who is present within his saints; we address ourselves to that power of Christ’s love which unites all within his body ... Through the Communion of Saints the glory of God shines out in his creatures. The Liturgy does not “teach” holiness, it does not in any sense explain the holiness of God, it is indeed incapable of doing so, but it reveals God’s holiness, opens the doors before his coming and causes a powerful awareness of his presence.’⁹ It is important here to remember that for Orthodox Christians ‘ortho-dox’ means both correct doctrine and correct worship. Just as the devotional life of the monks who defended icons safeguards correct belief, so also correct belief is enshrined in the Liturgy, which is itself housed in the Communion of Saints.

To a westerner it seems a great leap to start from the Christological defence of depicting Jesus and to end up with icons of his saints being *loci* of such concentrated holiness that churches are literally built of them. The connection is, however, perfectly logical to Orthodox. The iconoclasts had argued that icons of Christ could not be venerated because they depict only his human nature and not his divine nature. This immediately drew the response that iconoclasts were re-dividing the Person of Christ; icons of Christ can and should be venerated, said the iconodules, precisely because they depict a Person, who happens to be God. Jesus Christ was neither schizophrenic nor a doppelgänger, as the worst of Antiochene Christology had had him, but a fully integrated person. One of the great sources of misunderstanding between Orthodox and westerners is our seeming determination to regard the Chalcedonian definition as an adequate account of the Person of Christ. For Orthodox the tension between the divine and human

9. Evdokimov, *Art of the Icon*, 141.

natures persisted, not as a dry theological question, but as a very real threat to the unity not only of the Church but of the Empire. Monophysitism, effectively affirming the absorption of Christ's humanity into his divinity, caused the most devastating theological and political schism within the Byzantine Empire, one whose effects are of course still felt today.

For Orthodox, the problem of the person of Christ was only adequately resolved by Maximus Confessor in the 7th century. Although the heresy of monothelitism might seem obscure and peripheral to us, like monophysitism it represented a most serious threat to the Byzantine Church. Through monothelitism emperors tried to reconcile monophysites and dyophysites once and for all by asserting that as a single Person Christ had had only one will – and since he was perfect and God, this was the divine will. But this of course only brings us back to the 'what is not assumed is not saved' problem. Human nature involves having a will which is capable of saying 'no' to God; and if Jesus Christ was without this capacity there is no meaningful way in which he can be considered to have been human; his obedience to the Father becomes a sham. For Maximus it was precisely the unwavering adherence in love of Christ's human will to the divine will that integrated his divine and human natures, and enabled him to be a model of the perfected, integrated humanity to which we are called – a transformation that the incarnation makes possible.¹⁰ Thus the Christological errors involved in monothelitism and iconoclasm did not only involve the Person of Christ. Affirmation of Christ's full humanity and perfect incarnate obedience to the Father have anthropological and soteriological implications. In Jesus Christ human nature was restored in its perfection, making it possible for all humanity to be restored also. It is not a coincidence that Maximus, the great and at some times lone campaigner against monothelitism, devoted much of his writing to that subject so dear to the Orthodox and so uncomfortable for Latins: *theosis*, the transformation of a human sinner into a divinized saint. The western concept of 'godliness,' although it ought logically to equate to this, is but a shadow of eastern *theosis*; it does not carry the same metaphysical implications. In our journey from understanding the holiness of icons of Christ (as representing his unified Person) to understanding the holiness of icons of his saints, it is necessary to follow the theological logic of Byzantine anthropology and soteriology.

'Then God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the earth, and over every creeping thing that creeps upon the earth. So God created man in his own image, male and female he created them.'¹¹ At the heart of the Greek patristic and Byzantine vision of salvation is the restoration of humanity into the image and likeness of God, in which we were created. The conversation

10. This was promulgated at the sixth Ecumenical Council at Constantinople in 680.

11. Genesis 1:26f.

within the Godhead on the sixth day of creation describes the unfallen nature to which humanity is able to return because of the Incarnation. Image and likeness in Greek¹² are words which imply physical resemblance: the image and likeness of the Father is the Incarnate Son.

It is in our conformity to the beauty of God's image that heavenly beauty is manifest in creation. We can trace the development of this theme through the Fathers. In Gregory of Nyssa we read: '[it is] in his likeness that man manifests the divine Beauty.'¹³ And in pseudo-Dionysios: 'man was created according to the eternal model, the Archetype of Beauty ... God allows us to participate in his own Beauty.'¹⁴ Diadochos of Photike speaks of divine beauty in terms of the human soul being impressed with a seal,¹⁵ and it is Diadochos who gives the clearest and by far earliest (in the 5th century) comparison between the restoration of the divine image and the painting of a portrait. The aspect of our bodies which is most intimately linked with our divine likeness is our faces: the beauty of the Father is manifest in the face of the Son, and through the Son in the faces of the saints who have been restored into his likeness. (This belief that the face is intrinsically related to the divine image resulted in one of the more bizarre Byzantine phenomena, that of nose slitting. A deposed emperor often had his nose cut off, since Christ's representative could not have a deformed face. In a particularly horrifying incident, the faces of iconodules were deformed by iconoclasts, by having the words of Scripture carved into them: the Word of God exalted over the Image of God.)¹⁶

Following the Johannine Prologue, the beauty of the Son (the light of creation) was believed to be present in the human 'in the image' as light. In the passage of Diadochos which speaks of the image of God as a seal, he says that the righteous 'receive in their hearts the seal of divine beauty ... according to the holy one who says: The light of your countenance, O Lord, was printed on us.' And already in the 5th century there is an impetus to regard the manifestation of divine beauty as a visible light shining from the faces of the saints. Diadochos explicitly links this light with the Johannine Prologue: the divine light was incarnate in the Image of God, Jesus Christ, and those restored into that image are filled with this light. And so he says, 'One must not doubt that when the intellect begins to be activated constantly by the divine light it becomes a transparent whole, so that it sees its own light abundantly.'¹⁷ The process by which this comes about is, for the eastern Fathers, *theology*: not the scholarly discussion of God, but an active dialogue and relationship with God.

12. *eikon*, *homoiosis*.

13. Gregory of Nyssa, *On the Duties of Men* (*Patrologia Graeca* 18, 192, CD).

14. Pseudo-Dionysius, *Ecclesiastical Hierarchies* III: 7:2.

15. Janet Rutherford, *One Hundred Practical Texts of Perception and Spiritual Discernment from Diadochos of Photike* (Belfast: BBTT, 2000), 94.

16. See Mary Cunningham, *The Life of Michael the Synkellos* (Belfast: BBTT, 1989).

17. Rutherford, *100 Practical Texts*, 40.

Crucial for our understanding of icons as an interface between this world and the next is what results in the person of the theologian. Diadochos says that the intellect of one engaged in theology 'becomes one of the ministering spirits';¹⁸ that is, while being physically present on earth, such a person is also standing in the presence of God in heaven. As Evdokimov says, 'The icons of the saints do not pose the Christological problem of the two natures but rather the problem of the two bodies, the earthly and the heavenly. The already deified earthly body is the anticipation of the heavenly body, and the icon suggests the real face of eternity as God contemplates it.'¹⁹ And so he says elsewhere, 'In the revealing and therapeutic light of this image, we can penetrate the meaning of the events that take place on the world's stage. ... No sociological structure has a place for a being whose entire existence is exclusively defined as a theophany. And yet, this theophany is the only really "serious" thing in the world, for it puts an end to absurdity and stamps the heart of this world with the sign of another dimension and age.'²⁰

It is in this sense that the entire Orthodox Liturgy is seen as an icon: while taking place on earth, it is also already participating in the eschatological banquet in heaven. It is thus infused with divine beauty. The conversion of Russia began with the arrival of emissaries from Kiev to the Church of St Sophia in Constantinople. In their report they said, 'We did not know if we were in heaven or on earth, for on earth such beauty is not found.' Of this Evdokimov says: 'We are not dealing here with just an aesthetic experience; God's presence among men is what is beautiful; it is this beauty that ravishes and transports men's souls ... We now understand why Fr. Sergei Bulgakov called Orthodoxy "heaven on earth", because in its highest and purest form, it expresses itself in terms of light and beauty.'²¹

The transfiguration of the theologian into a radiant image is a theme that reached its apogee with the hesychasts of Mt Athos in the 14th century. Founded in the 10th century, Athos was from the outset devoted to ascetic prayer in the tradition of Evagrius, Diadochos, pseudo-Makarios, and others. The hesychasts, those who practised interior stillness, refined Diadochos' teaching on stillness, recollection, and the use of the prayer 'Lord Jesus,' into a fully developed method of contemplative prayer. As part of this they insisted that the real theologian physically emanates the light of the Transfiguration. The hesychasts became the source of the last great theological controversy of Byzantium, articulated primarily between Barlaam the Calabrian and St Gregory Palamas in the 14th century. The argument proceeded along lines similar to that of iconoclasm: did not the Incarnation bring God physically into his material creation, and if so, is his grace not physically present in those conformed to his image?

18. *Ibid.*, 67.

19. Evdokimov, *Art of the Icon*, 200.

20. *Ibid.*, 43.

21. *Ibid.*, 9.

As Gregory Palamas put it: 'Not only do the saints gaze upon the light, but they are themselves filled with light – in their souls and in their bodies. To see the glory of God is also to share in it and to be transfigured by it. This bodily transfiguration will be accomplished in its fulness only at the resurrection of the body at the Last Day; but the first-fruits of that final glorification can be experienced even now.'²² The transfiguration of saints into light remains a theme in modern Orthodoxy, and features in the lives of Russian saints (as does the ascetic 'withdrawal' into the desert, which for Russian hermits meant the uncharted and impenetrable forest).

Theosis has consistently been perceived in eastern Christianity to be the common calling of all Christians, and indeed God's offer to all mankind. The ascetic ideal in the west has often been, and still is, made accessible in various ways to lay people who are drawn to the religious life. But for the Orthodox it is much more than that: the asceticism and theology of prayer of eastern monasticism are the model for Christian life generally, and the transfiguration of the theologian is the fate of all the saints, religious and secular. In this regard it is useful to remember that the majority of Orthodox theologians (in our sense of the word) are lay people; and the majority of religious are not in priestly, or even diaconal, orders. Thus from the outset the hesychastic method of prayer was assumed to be as accessible to lay people as to religious. Symeon the New Theologian makes this explicit. And Nicholas Cabasilas translated the mystical theology of Gregory Palamas into instruction for ordinary Christians that is still widely influential among Orthodox. Most especially, he demonstrated that the sacraments form the heart of Christian life. Cabasilas represents the height of Byzantine liturgical theology, reinforcing the inextricable link between contemplative prayer and sacramental life.²³

At this point in our story, the light of Byzantium is fading. But in the 14th century an Athonite iconographer, the appropriately named Theophanes, set out from Constantinople for Russia. First in Novgorod and then in Moscow, he transformed Russian iconography both by his own painting of churches and through his pupils. And once in Moscow he met a certain monk, Andrei Rublev, the creator of some of the most excellent icons ever made. One of the most famous of these is the icon he was asked to make in memory of St Sergius of Radonezh, the patron saint of Russia. St Sergius was a 14th-century hermit who visibly emanated the divine light. He believed, and he taught his monks, that this was the result of his constant contemplation of the divine mystery of the Trinity. Evdokimov tells us that 'in the memory of the Russian people, St Sergius remains their heavenly protector. He gives them strength and is the very expression of the trinitarian mystery, of its light and unity.'²⁴ But in order to appreciate

22. Cunliffe-Jones, *Doctrine*, 223.

23. *Ibid.*, 224f.

24. Evdokimov, *Art of the Icon*, 245.

Rublev's remarkable achievement in the icon of the Holy Trinity we must first return to the beginning of our aesthetic and geometric journey.

Every year after the flooding of the Nile the surveyors of ancient Egypt began their annual task of re-drawing territorial boundaries which had been washed away. Their instrument for aligning east–west and north–south was a cord knotted into 12 equal lengths. By pegging four intervals aligned to stellar and solar guides, east–west was established. They then formed a triangle with sides of five intervals and three intervals respectively, creating a true right-angle which gave north–south on the three interval side. This simple 3:4:5 triangle formed the basis of the geometry by which all Egyptian art and architecture was created; the pyramids are three-dimensional (geometrically 'solid') representations of it. And from Egyptian art the great art of Greece arose. The Greeks of course developed and perfected the theoretical geometry that we have inherited, most notably through Euclid. But the west too often forgets that the formative Greek geometers were not only mathematicians, or even philosophers. As Hugh Bredin reminds us: 'Pythagorean studies of mathematics, geometry and cosmology were pursued less for their own sake than as a method of sustaining a life devoted to spiritual and ethical ideals.'²⁵ Or as Umberto Eco puts it, 'Pythagoras was the first to maintain that the origin of all things lay in number. ... [He] marks the birth of an aesthetico-mathematical view of the universe: all things exist because they are ordered and they are ordered because they are the realisation of mathematical laws, which are at once a condition of existence and of beauty.'²⁶

Pythagoras had a particular interest in progressions of ratios such as 2:3:4, 3:4:5 and 4:5:6. He discovered that the pitch of a note emitted by a vibrating string depends on the string's length; strings emitting a tonic, its fifth and its octave have lengths in the ratio of 2:3:4, and one of the most harmonious combinations of notes is obtained from ratios of 4:5:6. This was of particular interest to him since he believed that each heavenly body emitted its own note, too rarified to be heard, and that the music formed by all these notes, the music of the spheres, was the perfect manifestation of the geometric principles underlying the cosmos.

Arising from Pythagorean investigations into ratios of length was the discovery of the Golden Section. This is the division of any line in such a way that the shorter part relates to the longer as the longer part relates to the whole: the famous A is to B as B is to C. This forms a ratio of parts of roughly 1:1.618. It is what is termed in mathematics an 'irrational,' approximately 5/8, 8/13, 13/21, etc., but never exactly so. Pythagoreans found that this ratio underlies and relates to a plethora of geometric phenomena. It can be derived from the Egyptian 3:4:5 triangle. It is the ratio of one side of a regular decagon to the radius of its circumcircle. Of the

25. Hugh Bredin, *Philosophies of Art and Beauty* (Edinburgh: Edinburgh University Press, 2000), 22.

26. Umberto Eco, *On Beauty* (London: Secker & Warburg, 2004), 61.

five geometric 'convex solids,' the dodecahedron was of special significance to Pythagoreans; its 12 planes represented the signs of the zodiac, and it was a symbol for the universe. Each of its faces is a pentagon, which by extending its sides forms a pentagram, whose lines intersect in a ratio of 1:1.618. The pentagram was the badge of members of the society of Pythagoras, and was considered by them to be a symbol of health.

Mathematically the ratio 1:1.618 can be expressed in any additive, or summation, mathematical sequence – this is any sequence of integers in which each term is the sum of the preceding two terms, whatever the first two terms might be. Its simplest form is expressed in the Fibonacci series 0, 1, 1, 2, 3, 5, 8, 13, 21 (etc.). Such series can obviously be continued indefinitely; and the longer they become, into integers with ever increasing numbers of digits, the more nearly they approach an exact ratio of 1:1.618. A rectangle with its long and short sides in a ratio of 1:1.618, known as the 'golden rectangle,' was used in the best classical architecture (such as the Parthenon). Just as closer and closer approximations to the golden ratio are obtained in longer and longer numerical additive series, so also closer and closer approximations to the perfect 1:1.618 golden rectangle result from the geometric expression of the additive series, the rectangle of whirling squares. This succession of squares forms the basis of the spiral known in geometry as the 'logarithmic spiral,' and it is a fascinating thing indeed. (See *illustration 1*) The spiral passes through diametrically opposite corners of the successive squares (the lengths of whose sides form a Fibonacci series). The resultant curves therefore vary in size, but they do not vary in shape; the logarithmic curve, like the numerical Fibonacci series, is theoretically infinite; it can grow longer at the outer end and smaller at the inner end without geometric limit, expressing increasingly closely the irrational ratio 1:1.618.

As is widely known, this spiral is the pattern for the ordering of organic, i.e. living, things. It is the pattern in which leaves grow around a stem; the pattern of seeds in the head of a sunflower; the pattern of the chambers in a nautilus. Ancient Greek sculptors such as Phidias knew that it was also the pattern for ratios between the various parts of the human body; and in

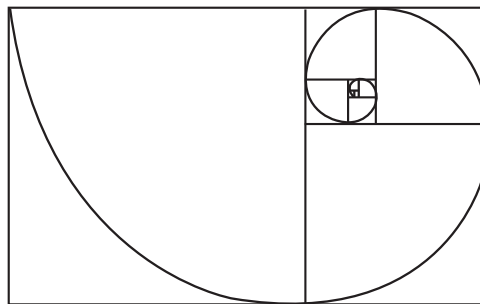


Illustration 1.

the early 20th century the ratio 1:1.618 was given the mathematical expression ϕ in honour of Phidias. This is why Vitruvius in transmitting the golden section to the west instructed that all buildings ought to be made according to the proportions of the human body. Things that live or have lived, grow or have grown, display patterning on the irrational ratio 1:1.618, but only organic things. The patterning of inorganic things is symmetrical and arithmetic. The classic way of telling whether a chemical is organic or a synthetic copy, for example, is to pass a beam of polarized light through it; the synthetic copy will produce a straight beam on the other side, but an organic chemical will produce a spiral of light.

In the early 1900s the Canadian artist and art critic Jay Hambridge embarked on a quest to discover why modern art was so ugly in comparison with classical art – particularly the sculpture and architecture of classical Greece.²⁷ In the years and decades that followed he identified two types of rectangle used in formatting objects of art: the ‘static’ (having arithmetic ratios such as 1:2, 2:3, 3:3, 3:4), and the ‘dynamic,’ formed in geometric ratios such as $1:\sqrt{2}$, $1:\sqrt{3}$, $1:\sqrt{4}$, $1:\sqrt{5}$. Root rectangles were of course known to Pythagoreans, and to Plato and Platonists after him. They are formed from the radius of the diagonals first of a square, and then of successive root rectangles. The golden rectangle can be obtained similarly, starting the diagonal from the centre of one side of a square. The mathematical explanation of this is contained in Euclid. Over the years Hambridge found that root rectangles form the basis not only of the best classical Greek sculpture, but also of the wall paintings of ancient Egypt. He also examined hundreds of human skeletons and found the same combinations of $\sqrt{5}$ and ϕ (golden, whirling squares) rectangles as he had found in Greek vases in the Boston museum. But something seems to have happened after the Greek classical period; whether because of the upheavals surrounding the decline of Athens, as Hambridge speculated, or for some other reason, root rectangles ceased to be used in the creation of art, though they continued to be known to geometers through Euclid. The divine proportion and the inheritance of Pythagoras were of course ever-present in the west, but not in the form of root rectangles. The ubiquity of ϕ in mathematics fascinated mathematicians of the Middle Ages and the Renaissance, as we know from the work of Luca Pacioli and Leonardo. But the circle and the pentagram were the great focus in the west, as can be seen also in the analyses of Gothic Churches made, for example, by F.M. Lund.²⁸

It is therefore a matter of some interest to discover that in the 14th century, at the height of hesychasm in Byzantium and apparently after an absence of some centuries, root rectangles and logarithmic spirals began to appear as the compositional basis of some icons in Byzantium, and through Theophanes, in Russia: first in Novgorod, and then in Moscow, where he

27. See Jay Hambridge, *Elements of Dynamic Symmetry* (Cambridge: Yale University Press, 1919).

28. See Matila Ghyka, *The Geometry of Art and Life* (New York: Dover, 1977).

met Rublev. Mrs Karyl Knee, a Russian Orthodox iconographer from Alaska (the second of my artists), began her Masters dissertation on icon mountains and 'reverse perspective' in the 1980s. Her research, however, led her to discover Hambridge's 'dynamic symmetry'; and she recognized this compositional basis in some of the 14th–16th-century Byzantine and Russian icons she was studying.²⁹ She realized that dynamic symmetry came to Russia through Theophanes, but was not aware of his connection with hesychasm. Russian theologians on the other hand are well aware that Theophanes brought hesychastic spirituality to Russian iconography, without realizing that Hambridge's 'dynamic symmetry' featured in its composition. Mrs Knee thought that the iconographers in this period who used dynamic symmetry had simply inherited a compositional convention whose origins they did not appreciate. But once the hesychastic associations (both theological and contemplative) of this tradition are taken into account, this is not really tenable; it can hardly have been a coincidence that it was from Athos, at the height of the hesychastic movement, that 'divine' Pythagorean shapes begin to appear as underlying compositional principles in icons. I would like to present what I believe to be at least a tenable argument that the Pythagorean geometry of 'dynamic symmetry' was transmitted, with some at least of its 'mystical' associations, beyond classical Greece and the Hellenistic period; and that through the Evagrian/Diadochan/Hesychastic tradition of ascetic theology it survived to find expression in the greatest of Russian iconography.

I don't think that this suggestion is as radical a 'conspiracy theory' as it might at first seem. It is well known that Byzantine monasteries preserved a wide variety of texts relating to contemplative prayer, and 'mysticism' generally, in the face of official condemnation. The largest extant corpus of gnostic texts was found, for instance, hidden around the monastery of Pachomius. When Evagrius was condemned, his work *On Prayer* – itself a mine of mystical numbers – survived attributed to St Nilus, and his *Gnostic Chapters* survived in Syrian monasteries, translated into Syriac. I have argued elsewhere³⁰ that what we know as the Homilies of Makarios – which are universally acknowledged not to be by Makarios of Egypt – constitute the condemned treatise of the Messalians (albeit probably in a bowdlerized form). All this is evidence that those who were professional 'prayerers' tried to amass and preserve whatever material they found useful. I have also suggested elsewhere³¹ that Diadochos – whose name is really the title for the head of a philosophical school – was the leader of a dispersed group of ascetics in the Evagrian tradition. It is indeed difficult to imagine either Evagrius' *Gnostic Chapters* or those of Diadochos being comprehensible to readers

29. See Karyl Knee, *The Dynamic Symmetry Proportional System* (Torrance, CA: Oakwood, 1988).

30. Janet Rutherford (unpublished doctoral dissertation).

31. Janet Rutherford, 'Praying the Trinity in Diadochos of Photike,' in *The Mystery of the Trinity in the Fathers of the Church* (at press).

who had not had some instruction in their significance; their precise import has certainly frustrated generations of Patristics scholars.

Diadochos, as well as making much of the 'due proportion' in which grace manifests itself to the soul³² and the importance of 'measure' and 'rhythm,' also has a quite ecstatic passage relating to heavenly music: in the text I quoted earlier about the theologian becoming one of the ministering spirits, he defines theology as that which 'feeds the intellect with the utterances of God in the sunshine of inexpressible light ... so that even among men (O the wonder!) the divine bridesmaid might tune the God-given voices which clearly hymn the powers of God.'³³ In addition, his passage likening the acquisition of holiness to the painting of a portrait is remarkable. Admittedly, in this text, he is obviously making an analogy with representational portraiture rather than what was to become defined as iconography as a result of the battle with iconoclasm. But it is striking to find this developed a connection between the image of God and the painted face, in the 5th century. In the same passage we find in combination a great number of elements which will be dear to the hesychasts.

But however we account for the presence of dynamic symmetry in hesychastic iconography, I am certain that it served as more than just a compositional convention.³⁴ To illustrate this we can return to the icon of The Holy Trinity by Rublev (early 15th century). The scene of this icon is from Genesis 18:1f. God appears to Abraham by the oak of Mamre, in the form of three men. Abraham greets them and provides a meal for them. Because the rules of iconography state that the Godhead can only be portrayed on the basis of accounts from the Bible, this is the only image of the Trinity that can be made. Pavel Evdokimov points out many geometric features of this icon, and Egon Sendler made a geometric analysis of it. Sendler was of course unaware of Hambridge's theories about root rectangles, so he cannot be suspected of bias in his analysis; but he has

32. According to Diogenes Laertius, Pythagoras emphasized 'due proportion' (*symmetria*) as the harmonious balance of opposites which is required for the health of both body and soul. A recurring theme in Diadochos is the kindling or inflaming of the soul by the Holy Spirit in 'due proportion.' This is very reminiscent of Heraclitus' fragment, preserved in Clement of Alexandria, about 'fire ever-living, kindled in measures and in measures going out' (Kahn XXXVII, Diels 30). If there is nothing provably geometric in Diadochos, there are certainly threads of Heraclitean fire flickering through his work.

33. Rutherford, *100 Practical Texts*, 67. Although it falls outside the scope of this article, it is important to note that the most obvious and generally accepted influence of Pythagoras on Orthodox worship is in its liturgical music. Music (by human voices alone) conveys heavenly beauty in the Orthodox liturgy in conjunction with the icons. The Orthodox liturgy preserves eight of the original fifteen ancient Greek musical 'modes.' According to both Porphyry and Iamblichos, Pythagoras used different modes of music to maintain and restore health (i.e. harmony) to both soul and body. His favourite mode was the Doric, which is thought to be the 'First Tone' of Orthodox liturgical music. Basil the Great also cites Pythagoras as having cured drunkenness by having Doric mode music played to tipsy revellers.

34. Those interested in the details of the geometric compositional basis of icons will be interested in the many analyses given by Egon Sendler in *The Icon: Image of the Invisible* (Torrance, CA: Oakwood, 1988).

actually identified rectangles which are root rectangles. Those in the middle of the composition are root 6 rectangles, and those outside them are Golden 'whirling square' rectangles; each pair forms a square, and the four squares form a large square. An isosceles triangle is implicit in the composition, and the large square holds a circle. There are also two noticeable asymmetrical features: the head of the figure representing the Father extends outside the square, and the cup (containing a tiny lamb) is not in the centre of the circle, rather the Father's hand which indicates the cup.³⁵ Evdokimov makes the interesting observation that the shape formed by the figure on the left (the Son) and that on the right (the Spirit), together with the upper edge of the table, form a chalice.

Evdokimov draws our attention to the anticlockwise movement in the composition of the figures of the Spirit and the Father, which he sees as originating in the Spirit's left foot and ending at the Son's head.³⁶ He finds it curious that the dynamism at the heart of the relationship between the persons of the Trinity starts with the Spirit; I find it incredible that it should start with the Spirit's left foot. But if we extend the curve he has identified we find something much more illuminating. Once we see that the movement within the Trinity is represented by a logarithmic spiral, we realize that the impetus at its heart is the cup, flowing out through the Father's head: God's loving self-sacrifice, present from eternity before creation. The dynamism of the Godhead begins with self-giving and culminates in the creative will of the Father, which is met by the clockwise inclination of the Son's assenting head. Evdokimov tells us that the rectangles on the table represent the world. The outer one is in fact a root 4 rectangle, and the inner one is a root 6 rectangle. Pythagorean symbols like the pentagram have sadly become the possession of magic and New Age paganism in the west; but in the east they have been preserved more faithfully to their Pythagorean origins. The real mystical chalice, far from being some lost 'holy grail,' is in fact here: the self-sacrificial love which binds the persons of the Trinity in unity, moving perpetually and limitlessly from the profundity of the essence of the Godhead outward in infinite love to mankind. Rublev thus expresses the eternity of God through the static stability of square, triangle and circle; but he affirms God's infinite dynamism and love through the limitless movement of the dynamic spiral inherent in biological creation: 1:1.618. (See *illustration 2*.)

Both Egon Sendler and Pavel Evdokimov recognized that the beauty of this and other icons derives from deviations the artist makes from exact

35. Evdokimov comments that 'The angels' perfect equality is so strongly expressed that there is no rule for defining which divine person is represented by which angel. There is no question about the angel on the right; it represents the holy Spirit.' (Evdokimov, *Art of the Icon*, 248). In identifying the central figure as the Father he follows the tradition of St Stephen of Perm, and I am following him. If, however, one reads the central figure as the Son, it fits equally well with the geometric observations which follow here, although the devotional emphasis in praying with the icon would shift somewhat.

36. Evdokimov, *Art of the Icon*, 247f.



Illustration 2.

geometric symmetry. They attributed this to the artist's individual genius. There can be no doubt that this icon derives from the genius, and above all from the devotional life, of its creator. But the origin of the 'dynamic stillness' – as it is termed by Orthodox – of such icons is surely the 'dynamic symmetry' rediscovered by Hambridge, and seemingly never lost by Byzantium. Sendler certainly describes how iconographers traditionally began, and still begin, their compositions by forming a 3:4:5 right angle with a knotted cord; they refer to it as the 'divine triangle.'³⁷ They then proceed to compose the geometric shapes upon which the icon will be based. This much has always been known; but having identified the logarithmic spiral in this icon I have subsequently found it in Theophanes' Virgin of the Don, and in some figure compositions of Rublev. It accounts for some of his curiously round-backed saints. Sendler believed that their composition was based on arcs; but when logarithmic spirals are positioned on the figures they make much more sense. The centre of the spiral is often around one of the figure's hands. The tension between the mirror image symmetry of static geometric forms and the asymmetry of root rectangles and the logarithmic spiral is surely what gives Rublev's greatest icons their aura of being timelessly still and yet alive. And given his associations with hesychasm and St Sergius, I am unable to believe that this was simply some sort of draughtsman's convention.

'Things are numbers,' according to Pythagoras. He and Heraclitus tell us that harmony is the sustained tension between opposites:³⁸ such as organic/inorganic, symmetrical/asymmetrical, or indeed rational/intuitive – lest we

37. Sendler, *The Icon*, 87.

38. We must remember that the richest source for Heraclitean quotations is Clement of Alexandria, whom Charles Kahn believed knew Heraclitus' book by heart. Interestingly, Kahn alludes to Hambridgian discoveries vis-à-vis archaic art, as part of his argument that Heraclitus'

forget Diadochos of Photike; Pythagoreanism explains a lot about his theology, too. According to Gregory of Nyssa, 'the greatest paradox is that stability and movement are the same thing.' For Pavel Evdokimov: 'The ineffable mystery of God is in this synthesis of immobility and movement: the absolute of the philosophers, the pure act of the theologians, and the living God of the Bible, Our Father who art in heaven.' It is beyond the scope of this article to explore all the intervening links which I believe exist between the Golden Mean of Pythagoras and the apex of Orthodox iconography in Rublev. It should also be stressed that these observations do not apply to all Byzantine iconography. But perhaps if we accept that through its tradition of contemplative prayer the east never entirely lost sight of the Pythagorean connection between geometry and divine beauty, we can better understand the sacramental significance of icons within the Byzantine Church. It certainly should lend clarity to statements by Orthodox that are perennially difficult for westerners to comprehend. One such is the quotation from Bishop Kallistos Ware with which I will conclude:

The icon painter is performing a task of the utmost spiritual significance. He takes paint and a panel of wood, in which God's glory is already present, as it is present in all creation. Then by means of line and colour he renders that glory present in a manner incomparably more splendid and explicit. He acts as the priest of creation, transfiguring it and making it articulate in praise of God. 'Through heaven and earth and sea, through wood and stone,' writes Leontius of Neapolis, '... I render obeisance and honour to the one Creator and Master and Maker of all. For the creation does not venerate the Creator through itself directly; but it is through me that the heavens declare the glory of God, through me the moon offers homage to God, through me the stars ascribe glory to him, through me the waters, rain, and dew, with the whole of creation, worship and glorify him.' The artist is a creator after the image of God the eternal creator: in the words of Theodore [Studios], 'The fact that man was made in the image and likeness of God shows that there is something divine in the making of icons.'³⁹

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book was originally carefully organized on the lines of poetical compositions of his time, rather than in the way we would expect of later Greek philosophical works. See the Introduction to Charles Kahn, *The Art and Thought of Heraclitus* (Cambridge: Cambridge University Press, 1979).

39. Cunliffe-Jones, *Doctrine*, 200.