

The Influence  
of Archetypical Ideas  
on the Formation of Johannes Kepler's  
Scientific Theories

by  
J. Kepler

1. Although the subject of this study is an historical one, its ~~intention~~<sup>purpose</sup> is not merely to enumerate facts concerning scientific history or even primarily to present an appraisal of a great ~~natural~~ scientist but rather to illustrate particular views on the origin and development of concepts and theories of natural science in the light of ~~an~~<sup>one</sup> historic example. In so doing we shall also have occasion to discuss the significance for modern science of the problems ~~manifesting themselves~~<sup>which arose</sup> in the period ~~single~~ <sup>singled</sup> ~~specifically under~~ <sup>out for</sup> consideration, the seventeenth century.

In contrast to the purely empiristic conception according to which natural laws can be derived ~~practically~~<sup>in a purely practical way</sup> and with absolute certainty, from the material of experience alone, ~~the role of~~ direction of attention and ~~the~~<sup>the</sup> intuition ~~has been recently~~<sup>play a considerable role</sup> ~~emphasized again by many physicists in the~~<sup>development of the</sup> concepts and ideas, ~~generally far transcending mere experience,~~<sup>generally far transcending mere experience,</sup> which are necessary for the erection of a system of natural laws (that is, a scientific theory) ~~and which in general far transcend mere experience.~~ From the standpoint of this not purely empiristic conception, which we also accept, there arises the question as to the nature of the bridge that ~~shall furnish~~<sup>operates as</sup> a link between the sense perceptions on the one hand and the concepts on the other. All logical thinkers have arrived at the conclusion that pure logic is fundamentally incapable of constructing such a link. It seems most satisfactory to introduce at this point the postulate of a cosmic order ~~that~~<sup>is independent of our choice</sup> ~~is beyond the reach of our volition~~ and distinct from the world of phenomena. Whether one speaks of the "participation of natural things in ideas " or of a "behaviour of metaphysical

Many physicists have recently reemphasized the fact that the

things, that is, those which are in themselves real" - the relation between sense perception and idea remains ~~consequence~~ <sup>predicated upon</sup> the fact that both the soul of the perceiver and that which is ~~perceptively recognized~~ <sup>recognized by perception</sup> are subject to an ~~objectively conceived~~ <sup>thought to be objective</sup> order.

Every partial recognition of this order in nature leads to ~~the~~ formulation of statements that, on the one hand, concern the world of phenomena and, on the other ~~hand~~, transcend it by employing, "idealizingly," general logical concepts. The process of understanding nature as well as the happiness that man feels in understanding, that is, in the conscious realization of new knowledge, seems thus to be based on a correspondence, a "matching" of pre-existent inner images <sup>in</sup> of the human psyche with external objects and their ~~relations~~ <sup>behavior</sup>. This ~~view~~ <sup>interpretation</sup> of scientific knowledge, of course, goes back to Plato and is, as we shall see, very clearly advocated by Kepler. ~~The latter~~ <sup>He</sup> speaks <sup>in fact</sup> indeed of ideas that are pre-existent in the mind of God and were implanted in the soul, ~~as~~ the image of God, at the time of creation. These primary images which the soul can perceive <sup>with the aid</sup> ~~by the help~~ of an innate instinct are called by Kepler archetypical. The <sup>is</sup> agreement ~~of these~~ with the "primordial images" or archetypes introduced into modern psychology by C.G. Jung and functioning as "instincts of imagination" is very extensive. When modern psychology brings proof to show that all understanding is a long-drawn-out process ~~which is~~ initiated by processes in the unconscious long before the content of consciousness can be rationally formulated, it has directed attention again to the preconscious, archaic level of cognition. On this level the place of clear concepts

is taken by images with strong emotional content, not thought out but beheld, as it were, while being painted. Inasmuch as these images are an "expression of a dimly suspected but still unknown state of affairs" they can also be termed symbolical in accordance with the definition of the symbol proposed by C.G. Jung. As ordering operators and image-formers in this world of symbolical images, the archetypes <sup>themselves</sup> function ~~as~~ as the sought-for bridge between the sense perceptions and the ideas and are, accordingly, <sup>even</sup> also a necessary presupposition for evolving a scientific theory of nature. However, one must guard against transferring this a priori of knowledge into <sup>the</sup> consciousness <sup>mind</sup> and relating it to definite ideas capable of rational formulation.

2. As a consequence of the rationalistic attitude of scientists since the eighteenth century, ~~however~~ the background processes that accompany the development of <sup>the</sup> natural sciences, although present as always and of decisive effect, remained to a large extent unheeded, that is to say, <sup>confined to</sup> the unconscious. On the other hand, we have in the Middle Ages down to the beginning of modern times no natural science in our sense but merely that ~~already mentioned~~ pre-scientific stage, <sup>as already mentioned</sup> of a magical-symbolical description of nature. This, of course, is also to be found in alchemy, the psychological significance of which has <sup>been</sup> ~~formed~~ the subject of intensive investigations by C. G. Jung. My attention was therefore directed especially to the seventeenth century, in which, as the fruit of a great intellectual effort, <sup>a truly</sup> ~~the then quite new~~ scientific thinking, <sup>quite</sup> grew out of the nourishing soil of a magical-animistic conception of nature. For the purpose of illustrating the relationship between archetypical ideas and scientific theories of nature

(new at the time)

Johannes Kepler (1571 - 1630) seemed to me especially suitable, since his ideas represent a remarkable intermediary stage between the earlier, magical- symbolical and the modern, quantitative-mathematical descriptions of nature <sup>1</sup>.

<sup>1</sup> The chief writings of Johannes Kepler (1571 - 1630) are as follows: 1. Mysterium Cosmographicum, 1st ed. 1596, sec. ed. 1621; 2. Ad Vitellionem Paralipomena, quibus astronomiae pars optica traditur, 1604. 3. De Stella nova in pede serpentarii, 1606. 4. De motibus stellae Martis, 1609. 5. Tertius interveniens, 1610. 6. Dioptrice, 1611. 7. Harmonices mundi (five books), 1619. 8. Epitome astronomiae Copernicanae, 1618 - 1621. -- It should be noted that Newton's chief work, Philosophiae naturalis Principia mathematica, appeared in 1687.

In that age ~~many things still closely allied that,~~ later <sup>on,</sup> were to be ~~critically divided~~ <sup>as</sup> the view of the ~~universe~~ <sup>was</sup> not yet split into a religious and a scientific one. Religious meditations, an almost mathematical symbol of the Trinity, modern optical ~~principles~~ <sup>theorems</sup>, essential ~~progress~~ <sup>discoveries</sup> in the theory of ~~the~~ <sup>vision</sup> ~~visual processes~~ <sup>physiology of the</sup> and the eye (such as the proof that the retina is the sensitive organ of the eye) are all to be found in the same book, Ad Vitellionem Paralipomena. Kepler is a passionate adherent of the Copernican heliocentric system, on which he wrote the first ~~connected~~ <sup>coherent</sup> textbook (Epitome astronomiae Copernicanae). The connection of his heliocentric ~~profession~~ <sup>creed</sup> -- as I should like to call it with intentional allusion to ~~professions of religion~~ <sup>religious creeds</sup> -- with the particular form of his Protestant-Christian religion <sup>in</sup> in general and with his archetypal ideas and symbols will be

By a critical effort were still closely interrelated: *in particular*

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*the following pages* examined in detail ~~on~~ what follows. *On the basis of the* ~~supported by his~~ heliocentric conception, Kepler discovered his three famous laws of planetary motion (1. Ellipses, focus sun, in De motibus stellae Martis. 2. Law of areas, in De motibus stellae Martis. 3. Time of revolution  $\tau$  proportional to  $a^{3/2}$ , *a* ~~being~~ *being half the* major axis, in Harmonices mundi, Book V). Not very long after their discovery these laws that to-day have a place in all ~~the~~ textbooks were to become *one of the* pillars on which Newton <sup>1</sup> based his theory of gravitation,

<sup>1</sup>  
Principia, 1687

namely, the law of the diminution of the ~~power~~ *force* of gravitation in inverse proportion to the square of the distance of the heavy masses from each other. But these laws that Kepler discovered -- the third after years of effort -- are not what he was originally seeking. He was fascinated by the old Pythagorean idea of the music of the spheres (which, *incidentally,* ~~indeed~~ also played no ~~small~~ <sup>m</sup> part in *contemporary* ~~the~~ alchemy of that time) and was trying to find in the movement of the planets the same proportions that appear in the harmonious sounds of tones and in the regular poly~~hedra~~ *hedra*. For him, ~~is~~ a true *spiritual* ~~intellectual~~ descendant of the Pythagoreans, all beauty lies in the correct proportion, for "Geometria est arch<sup>e</sup>typus pulchritudinis mundi" (Geometry is the archetype of the beauty of the world). This ~~principle~~ *axiom* of his is at once his strength and his limitation: his ideas on regular bodies and harmonious proportions ~~was~~ *did*, after all, not quite *work out* ~~work out~~ in the planetary system, and a trend of research, like that of his contemporary Galileo, which directed attention to the constant acceleration of freely falling bodies, was quite foreign to Kepler's attitude, since for such a trend

the de-animation of the physical world, which was ~~only~~ <sup>to be</sup> completed <sup>only</sup> with Newton's Principia, had not <sup>as</sup> yet progressed far enough. <sup>at</sup> the planets are In Kepler's view still living entities endowed with individual souls. Since the earth had lost its unique position among the planets he had to postulate also an anima terrae. We shall see how the souls of the heavenly bodies play an essential role in Kepler's particular views on astrology. <sup>yet</sup> The de-animation of the physical world had ~~already~~ <sup>to operate in of thought</sup> already begun <sup>for Kepler's</sup>. He does, to be sure, occasionally mention the alchemistic world soul, the anima mundi, that sleeps in matter, ~~it~~ is made responsible for the origin of a new star (De Stella nova in pede serpentarii, Chap. 24), and is said to have its seat, that is, its <sup>special</sup> particular concentration, in the sun. But it can be seen clearly that the anima mundi in Kepler's mind is no <sup>more than</sup> ~~longer anything but~~ a kind of relic and plays a subordinate role compared to the individual souls of the various heavenly bodies. Although Kepler's ideas reveal quite unmistakably the influence of Paracelsus and his pupils, the contrast between <sup>his</sup> ~~Kepler's~~ scientific <sup>method of approach</sup> ~~method of~~ ~~observation~~ and the magical-symbolical <sup>attitude</sup> ~~one~~ of alchemy was nevertheless so strong that Fludd, in his day a famous alchemist and Rosicrucian, composed a violent polemic against Kepler's chief work, Harmonices mundi. In Section 6 we shall revert to this polemic, in which two opposing intellectual worlds collided.

Before I go into detail regarding Kepler's ideas I shall furnish some brief biographical data to illumine the historical background of his life. Kepler was born in 1571 in the town of Weil in Württemberg. He was brought up in the Protestant faith and even originally destined by his parents for the clergy, but

soon came into conflict with the prevailing Evangelical theology in Württemberg because of his profession of the Copernican doctrine. Mästlin, his teacher in mathematics and astronomy, obtained for him a <sup>teaching</sup> position ~~as teacher~~ in Graz. When Kepler sent his first work, the Mysterium Cosmographicum, to Mästlin from Graz so that it might be published in Tübingen, Mästlin encountered a new difficulty. The Senate raised objections because the doctrine of the movement of the earth, which underlay the work, might ~~seem~~ <sup>tend</sup> to ~~disparage~~ <sup>diminish</sup> the prestige of Holy Writ. The difficulties were, however, eventually overcome, <sup>and</sup> the work appeared. But Kepler was faced with new difficulties: Ferdinand II became the ruler of Styria and carried out the Counter-Reformation in his lands very rigorously. As a Protestant Kepler was banished from the country on pain of death. This brought him fortunately into contact with Tycho Brahe, who after the death of his patron, Frederick II of Denmark, had accepted the call of Emperor Rudolf II and in the year 1599 moved to Prague, leaving his famous observatory Oranienborg on the island of Hven. From Prague in this same year came Tycho's invitation to Kepler just as the latter was being exiled from Graz. The collaboration of the two astronomers in Prague was exceedingly fruitful. Tycho, to be sure, died only two years later but Kepler was able to derive his first two laws from Tycho's exact observations. Circles were replaced by ellipses (1609), a great revolution in astronomy! <sup>P</sup>After the death of Rudolf II Kepler moved to Linz. He was obliged to expend a great amount of energy in order to defend his mother <sup>who had been put to trial</sup> ~~in court~~ for witchcraft ~~that had been brought against her~~; a woman living in the vicinity of Kepler's mother had fallen ill and maintained

that she had been put under a spell by her. Kepler finally succeeded in rescuing his mother from torture and the stake. In 1619, the year in which Kepler published his chief work, Harmonices mundi, Ferdinand II ascended the imperial throne. The persecutions of the Protestants increased and in 1626 Kepler ~~even~~ had to relinquish his post in Linz. After negotiations with Wallenstein were brought to an end by the latter's fall and subsequent assassination Kepler betook himself in the year 1630 to Regensburg in order to <sup>prefer</sup> ~~urge~~ his financial claims ~~on~~ <sup>at</sup> the Imperial Diet ~~there~~. His health had already been weakened and he succumbed to the trials and excitements of this journey soon after his arrival in Regensburg. He was buried outside the gates of that city, but the Thirty Years War removed every trace of his grave soon afterward.

3. Kepler's grave, however, is to us of far less importance than the ideas which are clearly expressed in his well preserved works and which we shall now examine more closely as documents of an age that despite all political and religious confusions was a period of scientific flowering.

Kepler's archetypical concepts are hierarchically arranged in such a way that the imperceptible trinitarian Christian Godhead occupies the highest place and each level is an image of the one above it. As regards this, Kepler invokes the authority of the doctrine of the signatura rerum, the signs of things, a doctrine employed and expanded by Agrippa of Nettesheim and by Paracelsus and his pupils. According to this theory, which originated in the Middle Ages and is ~~not~~ closely connected with the old idea of the correspondence of microcosm and macrocosm, things have

a hidden meaning that is expressed in their external form, inasmuch as this form points to another, not directly visible level of reality. Now for Kepler the most beautiful image, the one that represents God's own form of being (idea ipsius essentiae), is the three-dimensional sphere. He says already in his early work (Mysterium Cosmographicum)<sup>1</sup>: "The image of

<sup>1</sup>  
Gesamtausgabe von Keplers Werken, ed. Frisch, Vol. I, p. 122f. "Dei triuni imago in sphaerica Superficie, Patris scilicet in centro, Filii in superficie, Spiritus in aequalitate  
extens inter punctum et ambitum."

the triune God is in the spherical surface, that is to say, the Father's in the center, the Son's in the outer surface, and the Holy Ghost's in the <sup>equality of relation</sup> ~~equality of the relationship~~ between point and ~~the~~ circumference ." The movement or emanation passing from the center to the outer surface is for him the symbol of creation, while the curved outer surface itself is supposed to represent the eternal Being of God. Of the magnitudes (quanta or quantitates) evolved in the beginning by the Creator the curved one is the symbol of the intellectual or spiritual and <sup>is</sup> thus more perfect than the straight, which as the simulacrum of the created ~~also~~ represents the physical world. This can be <sup>learned</sup> ~~deduced~~ from the following quotation from the fourth book of the Harmonices mundi, a quotation that also shows how in Kepler's hierarchical arrangement the human spirit bears the same relation to the perfect, Divine spirit as <sup>does</sup> the circle to the sphere.

Harmonices mundi, Book V (Frisch, p. 223)

"..... There follows then the straight line, which <sup>by the</sup> ~~through the~~ movement <sup>of a</sup> ~~of a~~ point <sup>located in</sup> ~~at~~ the center to a single point on the outer surface <sup>of the sphere</sup> represents the first beginnings of creation, <sup>F</sup> ~~is emulating of the eternal engendering of the Son~~ ~~the division of the center~~ <sup>flows out toward</sup> ~~toward~~ <sup>in many</sup> ~~in many~~ points of the <sup>outer</sup> ~~outer~~ surface, <sup>which</sup> ~~which~~ <sup>letter</sup> ~~letter~~ is formed and delimited <sup>by</sup> ~~by~~ them infinitely many <sup>lines</sup> ~~lines~~ of perfectly equal length. <sup>It</sup> ~~It~~ this straight line is, <sup>it</sup> ~~it~~ <sup>the</sup> ~~the~~ element of corporeal form. <sup>If</sup> ~~If~~ it is drawn out <sup>in width</sup> ~~in width~~ <sup>[in addition to length]</sup> ~~[in addition to length]~~, it already vaguely foreshadows corporeal form itself by creating the plane. <sup>and</sup> ~~and~~ the surface of intersection <sup>of the sphere and the plane</sup> ~~of the sphere and the plane~~ is the circle, the innate image of the created mind, <sup>that</sup> ~~that~~ is appointed to rule the body. <sup>The</sup> ~~The~~ circle stands <sup>in this proportion</sup> ~~in this proportion~~ to the spherical <sup>(as the human mind to the Divine,</sup> ~~(as the human mind to the Divine,~~ <sup>is to say,</sup> ~~is to say,~~ <sup>as the line to the surface)</sup> ~~as the line to the surface)~~ <sup>both,</sup> ~~both,~~ to be sure, <sup>curved,</sup> ~~curved,~~ <sup>to the</sup> ~~to the~~ plane in which it is contained, however, <sup>it</sup> ~~it~~ is related <sup>as</sup> ~~as~~ the curve to the straight ~~line~~, which are mutually incompatible and incom- measurable. <sup>And</sup> ~~And the circle <sup>applies fits into</sup> ~~belongs both to~~ the secant plane <sup>(as its</sup> ~~(as its~~ <sup>circumscribing limit)</sup> ~~circumscribing limit)~~ <sup>and to the section of the sphere,</sup> ~~and to the section of the sphere,~~ <sup>in their</sup> ~~in their~~ <sup>mutual concurrence,</sup> ~~mutual concurrence,~~ just as the <sup>mind</sup> ~~mind~~ is both in the body, informing it and <sup>connected with corporeal forms,</sup> ~~connected with corporeal forms,~~ and <sup>sustained by</sup> ~~sustained by~~ <sup>all the physical connections,</sup> ~~all the physical connections,~~ and also contained in God (an irradiation, as it were, <sup>into</sup> ~~into~~ the body from the divine countenance), whence it <sup>derives its nobler nature.</sup> ~~derives its nobler nature.~~ <sup>Because of this</sup> ~~Because of this~~ the circle is the established derivatory principle for the harmonious proportions and the source of their determinants, <sup>—</sup> ~~—~~ but for just this reason the greatest abstraction is to be recommended since the image of the mind of God dwells neither in a circle of <sup>certain</sup> ~~certain~~ size nor in an~~

Fig 1 imparts many lines,

by the principle of ~~proportionally~~ <sup>equally</sup> parts

$F$  in ~~equally~~ <sup>that</sup>

$F$  ~~equally~~ <sup>equally</sup> ~~parts~~ <sup>parts</sup> of the ~~whole~~ <sup>whole</sup> ~~parts~~ <sup>parts</sup> of the ~~center~~ <sup>center</sup> ~~flows~~ <sup>flows</sup>

out ~~of the~~ <sup>of the</sup> ~~parts~~ <sup>parts</sup> ~~of the~~ <sup>of the</sup> ~~whole~~ <sup>whole</sup> ~~parts~~ <sup>parts</sup> ~~of the~~ <sup>of the</sup> ~~center~~ <sup>center</sup> ~~flows~~ <sup>flows</sup>

parts of ~~the~~ <sup>the</sup> ~~whole~~ <sup>whole</sup> ~~parts~~ <sup>parts</sup> ~~of the~~ <sup>of the</sup> ~~center~~ <sup>center</sup> ~~flows~~ <sup>flows</sup>

the ~~principle~~ <sup>principle</sup> of ~~proportionally~~ <sup>proportionally</sup> parts ~~equally~~ <sup>equally</sup>, is

of ~~many~~ <sup>many</sup> lines, at this stage

one is, ~~needed~~ <sup>needed</sup> ~~any~~ <sup>any</sup>,

found and

When intersected by a plane, the ~~surface~~ <sup>surface</sup> ~~of the~~ <sup>of the</sup> ~~body~~ <sup>body</sup> ~~appears~~ <sup>appears</sup> in this section the circle,

imperfect ~~circle~~ <sup>one</sup> such as are the material <sup>and</sup> perceptible circles; and, what is the chief thing, <sup>because</sup> the ~~idea of the~~ circle must be kept as free [abstract] from all that is material and <sup>perceptible</sup> ~~sensuous~~ as the relations of the curved line, the symbol of the spiritual, are separated and, as it were, abstracted from the straight, the ~~intimation~~ <sup>similarity</sup> of the corporeal. ~~This is reason enough then for us to~~

<sup>our task is</sup> derive the determinants of the harmonious proportions, ~~objects~~ <sup>subject</sup> accessible to the soul alone, ~~only from~~ <sup>only</sup> completely abstract quantities. (Latin: "... Sequitur igitur recta linea...")

This picture of the relationship between the human and the divine <sup>fits in very well with the interpretation of knowledge as</sup> mind ~~is a good illustration of the conception, of which we have~~ <sup>already</sup> ~~spoken, of knowledge~~ as a "matching" of external impressions with pre-existent inner images. Kepler formulates this idea very clearly as follows, adducing ~~as authority~~ his favorite author, Proclus (Harmonices mundi, Book IV, Frisch, Vol. V, p. 224):

"For to know is to <sup>compare</sup> correlate that which is externally perceived with the inner ideas and to <sup>decide that they are in</sup> ~~judge of their~~ agreement, a matter that Proclus expressed very beautifully by the word 'awakening', as from a sleep. <sup>For the perceptible things</sup> ~~As, indeed that~~ <sup>appear</sup> which ~~we meet~~ <sup>side</sup> in the outward world makes us remember what we knew before, so <sup>does a sensory expansion</sup> ~~those things that are sensuously experienced, if they are rationally cognized, antice out those that~~ <sup>when consciously realized, call forth an intellectual</sup> ~~are intellectual and previously present inwardly;~~ <sup>appearments that had already been</sup> so that ~~these then~~ <sup>that which</sup> shine forth in the soul, whereas <sup>had been</sup> ~~they were~~ <sup>in the soul</sup> hidden ~~there,~~ as ~~it were,~~ under a veil <sup>in potentia.</sup> ~~But~~ How then did they find ingress? I answer: <sup>the</sup> ~~all~~ ideas or formal concepts, <sup>of the harmonies,</sup> ~~such~~ as I have just discussed <sup>them,</sup> lie in those beings that possess that faculty of rational cognition,

of potentiality, now shine therein in actuality.

the pattern of the geometrical principles from the very <sup>beginning</sup> ~~origin~~ of man <sup>kind</sup> ~~enwards~~." <sup>1</sup>

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<sup>1</sup> Apologia contra Fludd (Frisch, Vol. V, p. 429). "... ut ego in mente divina, cujus exemplar hic est humana, characterem rerum geometricarum inde ab ortu hominis ex archetypo suo retinens."

I now quote two passages from the already cited fourth book of the Harmonices mundi: the Commentary on Proclus:

~~of which we know that the~~

"The mathematical principles according to which the corporeal world was to be created are coeternal with God; ~~and~~ <sup>not</sup> God is soul and mind in the most supernally true sense of the word; ~~and the believers in Christ know that the human souls~~ <sup>and that</sup> are the images of God the Creator,

<sup>also</sup> ~~also~~ in the essentials ~~according to his~~ <sup>own</sup> ~~model~~ ....The mathematical principles have been "created in the soul simultaneously with it (eius inerant animae)". (Harmonices mundi, Book IV, the Commentary on Proclus)  
(Latin: "... rationes coaeternum...")

You may

"~~One~~ <sup>ask</sup> ~~oneself~~ ~~then~~ how ~~one~~ can <sup>have</sup> knowledge of a thing that the mind neither has learned nor ever could learn if it were deprived of the <sup>sensory</sup> ~~sensuous~~ perception of external things. Proclus

~~gave an answer to this question in his philosophical discussions.~~ <sup>has answered</sup> ~~the language constantly used in his philosophy.~~

~~Today~~ <sup>Nowadays</sup> we very properly use ~~for this~~, if I am not mistaken, the word 'instinct'. For the quantitas is known to the human mind and ~~also~~ to the other souls, by instinct, even though it ~~could not employ~~ <sup>were lacking</sup> ~~any of~~ <sup>all</sup> the senses for this purpose. The mind is of itself cognizant

~~of all creatures from their infancy to their~~ <sup>of all creatures from their infancy to their</sup>

of the straight line <sup>and of</sup> an equal interval from a point and can thereby imagine a circle. If the mind can do that, it is even more possible for it to discover <sup>the proof</sup> ~~the proof~~ and therefore fulfill the function of the eye in looking at <sup>a</sup> ~~the~~ diagram (if <sup>that were necessary</sup> ~~it needs it~~). In fact, the mind itself, if it had never possessed an eye, would demand an eye in order to comprehend things outside itself and would ~~seek and~~ prescribe <sup>the laws of its formation,</sup> ~~the laws of~~ <sup>having obtained them from itself</sup> ~~its own self....~~ ~~for~~ The very cognition of the quantities, ~~that is~~ innate in the mind, dictates what the eye ought to be like, and therefore the eye has become <sup>what it is</sup> ~~as~~ the mind is <sup>what it is,</sup> and not vice versa. But why make many words? Geometry is coeternal with the mind of God before the creation of things; <sup>it is</sup> ~~is~~ God Himself (what is in God that is not God Himself?) and has supplied <sup>God</sup> ~~us~~ with the models for the creation of the world. ~~With~~ the image of God <sup>it</sup> has passed into man, <sup>and was certainly not</sup> ~~and was not~~ received within ~~later~~ through the eyes." (Harmonices mundi, Book IV, De Configurationibus Harmonis),

*Latin: "Quia, qui perit"*

<sup>when</sup> However, Kepler says ~~in a letter~~ that in the mind of God, for example, it has been eternally true that the square of the side of a square ~~is~~ equals ~~to~~ half the square of <sup>the</sup> diagonal, we do not, to be sure, begrudge one of the first joyful discoverers of quantitative, mathematically formulated natural laws his elation but must, as modern men, remark in criticism that the axioms of Euclidian geometry are not the only possible ones. I have already ~~once before~~ set up a signboard warning that theses determined by means of rational formulations should never be declared the only possible <sup>premises</sup> ~~assumptions~~ of human reasoning. In that connection I had particularly in mind

certain formulations of Kant's philosophy that seem to me to be misleading. I therefore propose to leave <sup>even with respect to geometry,</sup> the a priori ~~for geometry~~ ~~is~~ at the metaphorical preliminary stage of ideas guiding the instinctus <sup>which is the reason why I cannot</sup> ~~(yet I do not on that account)~~ follow the scholar who has translated Kepler's word instinctus by "~~pure intuitive perception~~" <sup>reine Anschauung</sup>).

On the other hand, I entirely share the opinion that man has an instinctive tendency, ~~which is~~ not rooted merely in external experience, to interpret his <sup>org</sup> ~~sensuous~~ perceptions in terms of Euclidean geometry. It took <sup>a</sup> special intellectual <sup>effort</sup> ~~labor~~ to ~~arrive at~~ <sup>reach</sup> a recognition of the fact that the latter's assumptions are not the only (ones possible).

Probably even the modern thinker can agree with the following general formulation of Kepler's (Book IV, Harmonices mundi): "The perceptible harmonies have ~~something~~ <sup>that</sup> in common with the archetypal harmonies

~~because they postulate the latter's concepts and comparable form~~ <sup>that require terms</sup> and <sup>the comparison of terms</sup> ~~comparable form~~ <sup>itself;</sup> ~~the activity (energeia) of the soul~~ <sup>The essence of both</sup> ~~consists of this act of comparing."~~ <sup>1</sup>

*consists the essence of both. For instance.*

<sup>1</sup> Frisch, Vol. V, p. 223: "Commune enim habent harmoniae sensiles cum archetypalibus, quod terminos requirant eorumque comparationem, ipsius animae energiam; in hac comparatione utrarumque essentia consistit."

4. We now follow Kepler <sup>me</sup> ~~step~~ further down in the hierarchical order of his ~~view of the cosmos~~ <sup>universe</sup>, passing, that is, from the ideas in the mind of the Godhead to the corporeal world. Here the heavenly bodies, with the sun as the central point in the sense of the signatura rerum, are for him a realization of the ideal spherical image of the Trinity, though less perfect than it. The sun in the center, as the source of light and warmth and accordingly of life,

seems to him especially suited to represent God the Father. I quote on this point the following, very typical passage from his book on Optics.

Paralipomena ad Vitellionem, Frankfurt, 1604, pp. 6 - 7.

"First of all the nature of every thing was bound to represent God its creator as far as it was able to do so within the condition of its being. For when the allwise Creator sought to make everything as good, beautiful, and <sup>excellent</sup> perfect as possible, He found nothing that could be better or more beautiful or more <sup>excellent</sup> perfect than Himself. Therefore when He was conceiv<sup>ed</sup> in His mind the corporeal world He chose for it a form that was a similar as possible to Himself. Thus originated the entire category of the quantities, and <sup>within</sup> in it the differences of the curved and the straight and the most <sup>excellent</sup> glorious figure of all, the spherical surface. For in forming this the most wise Creator created playfully the image of His venerable Trinity. Hence the center point is, as it were, the origin~~the source~~ of the spherical body; the outer surface the image of the innermost point, <sup>as well as</sup> also the way to <sup>arrive at</sup> discover it, and <sup>and</sup> ~~[further]~~ <sup>The outer surface can be understood as coming</sup> that which comprehensibly originates through the <sup>expansion</sup> ~~infinite emergence~~ of the point <sup>beyond</sup> from itself <sup>until</sup> up to a certain equality of all the individual acts of <sup>expansion is absolute</sup> ~~emerging~~ <sup>spreads itself</sup> whereby The point <sup>are identical except for the</sup> ~~communicates~~ itself <sup>out over this</sup> in ~~each~~ extension, <sup>so that</sup> that point and surface, <sup>are identical except for the</sup> in an inverse <sup>fact that the ratio</sup> ~~proportion~~ of density <sup>only</sup> (extension) <sup>is reversed.</sup> shall be equal. Hence there exists everywhere between point and surface the most absolute equality, the closest unity, the most beautiful harmony [literally: breathing together!], connection, relation, proportion, and commensurability. And although ~~they~~ are manifestly Three Center, Surface, and <sup>Distance</sup> ~~Interval~~ yet are they One, so that no one of them could be ~~missing~~ even <sup>in</sup>

*imagined to be absent*

~~thought~~ without destroying the whole.

This then is the genuine and most suitable image of the corporeal world, and every being among those physical creatures that aspire to the highest perfection ~~acknowledges~~ <sup>assumes</sup> it, <sup>[viz., the spherical shape]</sup> either ~~simply~~ or in a certain respect. Therefore the bodies themselves, which <sup>absolutely</sup> are ~~not~~ confined by the limits of their surfaces and are thus unable to <sup>expand</sup> ~~enlarge~~ themselves into spherical form, are endowed with ~~various~~ <sup>various</sup> powers, <sup>nesting</sup> which ~~are~~ <sup>are</sup> ~~indeed~~ <sup>indeed</sup> ~~localized~~ in the bodies, <sup>which</sup> ~~are~~ in themselves somewhat freer, <sup>than the bodies themselves,</sup> possessing no corporeal matter, but consisting <sup>ing</sup> of a particular matter of their own that assumes geometrical dimensions, <sup>and which flow out from them and aspire to</sup> ~~and these powers aspire and try to represent~~ the circular form! -- as can be clearly seen especially in the magnet but also in many other things. Is it any wonder, then, if that principle of all beauty in the world <sup>1</sup>, which the divine Moses introduces into scarcely created

1  
the sun

matter, even on the first day of creation, as <sup>the Creator's</sup> ~~an~~ instrument, as it were, <sup>by which</sup> ~~the Creator intended~~ to give (all things) visible shape and life to -- <sup>is it any wonder, I say,</sup> ~~that~~ if this primary principle and this most beautiful being in the whole corporeal world, the matrix of all animal faculties, and the bond between the physical and the intellectual world, <sup>submitted to</sup> ~~entered~~ ~~into~~ those very laws by which the world was to be ~~formed~~? Hence the sun is <sup>a certain</sup> ~~the~~ body, <sup>which</sup> ~~in~~ <sup>resides</sup> that faculty of communicating itself to all things which we call light, <sup>wherefore</sup> ~~is its fitting place~~ <sup>its rightful place is</sup> the middle point and <sup>whole</sup> ~~the~~ center of the world ~~is its fitting place~~ <sup>Even</sup> For this reason also, so that it may ~~perpetually~~ <sup>perpetually</sup> diffuse itself <sup>alone</sup> ~~perpetually~~ and uniformly <sup>in the whole Cosmos</sup> ~~in the whole Cosmos~~. (All other beings that share in ~~the~~ light imitate the sun.) <sup>throughout the universe.</sup>

(Let us "begin with all things, the world")

I should first of all like to point out that Kepler alludes here to a photometric law expounded by him in this book, according to which, as we say to-day, the intensity of illumination decreases in inverse ratio to the square of the distance from the source of light, which is conceived as a point. The word "amplitudo", translated by "extension", obviously means here the area of the sphere's surface, which is, of course, proportional to the square of the length of the radius. This photometric law of Kepler's is of great importance and brought him very close to the discovery of the law of gravitation. From this example it can be seen that in Kepler the symbolical picture precedes the conscious formulation of a natural law. The symbolical images and archetypical conceptions are what cause him to seek natural laws. For this reason we also regard Kepler's view of the correspondence between the sun ~~and~~ <sup>with</sup> its surrounding planets and his abstract spherical picture of the Trinity as primary: because he looks at the sun and the planets with this archetypical image in the background he believes in the heliocentric system with religious fervor -- by no means the other way around, as a rationalistic view might erroneously assume. This heliocentric belief, to which Kepler remained faithful from early youth, impels him to search for the true laws of the proportion of planetary motion as the true expression of the beauty of creation. At first this search ~~is~~ <sup>went</sup> ~~in~~ <sup>a</sup> ~~the~~ wrong direction and ~~is~~ <sup>was</sup> later corrected by the results of actual measurement.

Kepler's conception of the sun with the planets as the image of the Trinity is also very clearly revealed in the following quotation from his treatise, Tertius interveniens, which was written in the German language. We shall dwell later on the significance of the title and the other contents of the book. The passage in question

is taken from Section 126 of the book <sup>which</sup> ~~and~~ bears the title "A Philosophical Discourse <sup>de</sup> ~~on the~~ signaturis rerum." It runs thus:

"And as the heavenly corpora (orbes) are vel quasi signified and depicted in the geometrical corporibus and contra: So also will the heavenly movements that take place in a circulo correspond to the geometrical planis circulo inscriptis. (See above num. 59)

Indeed, the most holy Trinity is ~~represented~~ <sup>depicted</sup> in a sphaerico concavo, and this in the world and prima persona, fons Deitatis, in centro; the centrum, however, <sup>is depicted</sup> in the sun, qui est in centro mundi; ~~for the latter is also~~ <sup>for it, too, is</sup> a source of all light, movement, and life in the world.

Thus is anima movens represented in circulo potentiali which is in puncto distincto: ~~Therefore~~ <sup>thus</sup> a physical thing, a materia corporea, is represented in tertia quantitatis specie trium dimensionum: ~~therefore~~ <sup>thus</sup> is cuiusque materia forma represented in superficie. For as a materia is informed by its forma so ~~also~~ is a geometrical corpus shaped by its external fields and superficies: of which things ~~then~~ many more could be adduced.

Now since the Creator played, so he also taught Nature, as his image, to play; and ~~in truth~~ <sup>to play</sup> the very same play that he played for her first...."

From these words of simple beauty it appears that Kepler connects the Trinity with the three-dimensionality of space and that the sun with the planets is regarded as a less perfect image of the abstract spherical symbol. By means of this conception, which is related to the idea of correspondences Kepler, avoids a pagan worship of Helios and remains true to the Christian belief.

In this connection I should also like to mention the "Epilogus de Sole conjecturalis" with which Kepler concludes his chief work, the Harmonices mundi, and in which, among other things, he ~~views~~ <sup>defines,</sup> ~~issue~~ from his Christian point of view, <sup>with his attitude toward</sup> the pagan hymn to the sun <sup>by</sup> his favorite author Proclus. Kepler's notion of a playful activity established ever since the creation of the world and re-played by nature in imitation of the original is also in accord with the idea of the "signature."

With regard to the concept "anima movens" I should like to remark that Kepler's views on the cause of ~~the~~ movement are vacillating. In one passage in his treatise on the new star he says:

".....Finally, <sup>those</sup> ~~the~~ motive powers of <sup>the</sup> ~~these~~ stars <sup>share, in</sup> ~~are~~ some way, <sup>in the capacity of thought</sup> ~~capacity for thought~~ so that they ~~conceive~~ <sup>as it were,</sup> understand, <sup>imagine,</sup> and aim at their path, not of course by means of ratiocination like us human beings but by an innate impulse implanted in them from the beginning of Creation; just so do the <sup>spiritual animal</sup> ~~faculties~~ of the natural things <sup>acquire, though without ratiocination,</sup> ~~retain~~ some knowledge of their goal ~~accordingly~~ to which they direct all their actions."

(Latin: "...Omnique ut facultatis.")

Here Kepler adopts the animistic point of view, but elsewhere he says:

"....The sun in the midst of the movable stars, itself at rest and yet the source of motion, bears the image of God the Father, the Creator. For what creation is to God motion is to the sun; it moves, however, within the fixed stars as the Father creates in the Son. For if the fixed stars did not create space by means of their ~~static being~~ nothing could move. The sun,

<sup>state of immobility</sup>

however, distributes its motive force through <sup>the</sup> a medium in which the movable things <sup>exist, just</sup> ~~are~~ as the Father creates through the Holy Ghost or through the power of the Holy Ghost."

~~(Latin: "Sol in firmamento")~~

This conception has much in common with modern field-physics. As a matter of fact Kepler thought of the gravitation emanating from the sun as similar to light and yet differing from it. He <sup>also</sup> compares this gravitation ~~also~~ to the effect of magnets, with reference to Gilbert's experiments.

In view of Kepler's conflict with Fludd, the representative of traditional alchemy, a conflict which we shall discuss later, it is important that Kepler's symbol -- a type designated by C. G. Jung as mandala because of its spherical form -- contains no hint of the number four or quaternity. This is all the more significant since Kepler had an excellent knowledge of the Pythagorean numerical speculations, particularly of the tetraktys, which he discusses in detail in the third book of his Harmonices mundi as an historical introduction to his own theory of musical intervals. But these <sup>ancient</sup> ~~old~~ speculations are to Kepler <sup>more</sup> ~~only~~ a curiosity; the number four has for him no symbolical character. Perhaps the lack of a symbolism of time in Kepler's spherical picture is related to the lack of any suggestion of quaternity. Movement in a straight line, directed away from the center, is the only kind contained in Kepler's symbol, and in so far as this movement is caught up by the outer surface of the sphere the symbol can be termed static. Since the Trinity had never been represented in this particular way before Kepler, <sup>since</sup> and he stands at the threshold of the scientific age, one is tempted to assume that Kepler's "mandala" symbolizes a way of

thinking or a psychological attitude <sup>which,</sup> far transcending in significance Kepler's person, ~~and~~ produced that natural science which we to-day call classical. From within an inner center the psyche seems to move outward, in the sense of an extraversion, into the physical world in which <sup>by definition,</sup> ~~supposedly~~ everything that <sup>occurs</sup> ~~transpires~~ is automatic; so that the mind, itself in a state of rest, embraces, <sup>1</sup> as it were, with its ideas this physical world.

<sup>1</sup> According to the psychology of C.G. Jung the psych~~ic~~ <sup>ological processes</sup> ~~happenings~~ that accompany an enlargement of consciousness can be represented as the coming into being of a new center embracing conscious as well as unconscious contents (~~and~~ called by C.G. Jung "self"). These "centering" processes are always characterized by the symbolical pictures of the "mandala" and of rotating movement.

→ the latter is very vividly termed "circulation of light," ~~in~~

In Chinese texts,

~~In connection with any~~ <sup>an</sup> attempt to apply these results of analytical psychology to the phase of intellectual history known as the rise of classical mechanics in the seventeenth century (which is most closely connected with the heliocentric idea), ~~we~~ <sup>we</sup> ~~is essential to note~~ <sup>should bear in mind</sup> that ~~in the case of~~ <sup>the attention of</sup> the scientists who helped to found classical mechanics ~~was~~ was directed only outward. It is therefore to be expected that the above mentioned inner centering processes, together with the appropriate images, would be projected outward. Indeed we can <sup>observe</sup> ~~actually determine~~, in ~~regard to~~ Kepler's views specifically, that the planetary system with the sun as center ~~has~~ become the bearer of the "mandala" picture,

the earth being related to the sun as <sup>is</sup> the ego to the more embracing "self". It appears that in this way the heliocentric theory received <sup>in the minds</sup> ~~on the part~~ of its adherents <sup>are</sup> injections of strongly emotional content <sup>stemming</sup> from the unconscious. Perhaps the projection of the above mentioned symbolical image of the inner rotating movement onto the external rotation of the heavenly bodies contributed to the <sup>investment of</sup> ~~description of an absolute character to~~ this external rotation <sup>with an absolute validity</sup> that went beyond ~~any~~ empirical experience. An additional argument for this opinion is that in Newton the ideas of absolute space and absolute time entered even into his theological views.

5. The next step in Kepler's hierarchical arrangement of the cosmos, which we have already traced from the trinitarian <sup>Godhead</sup> ~~trinity~~ and the ideas in the mind of God through their spherical model down to the physical world, the sun, and the heavenly bodies revolving about it, leads us now to the individual souls.

We have already said that for Kepler the earth is a ~~sentient~~ <sup>living</sup> ~~thing~~ like man. As living bodies have hair, so does the earth have grass and trees, the cicadas <sup>being</sup> ~~are~~ its <sup>"dandruff"</sup> ~~scum~~; as living creatures secrete urine in a bladder, <sup>do</sup> so the mountains make springs; sulphur and volcanic products correspond to excrement, metals and rainwater to blood and sweat; the sea water is the earth's nourishment. As a living being the earth has a soul, the anima terrae, with qualities that can be regarded as to a large extent analogous to those of the human soul, the anima hominis <sup>1</sup>. We can therefore understand by individual soul

<sup>1</sup>  
The conception of the earth as a living being with a soul is already present in late Antiquity. See on this point:

Cicero, De natura deorum, II, 83

Ovid, Metamorphoses, XV, 342

Seneca, Nat. quaest., VI, 16, 1

Plotinus, IV, 4

Cf. also the article "Plotinus" by H. R. Schwyzer in Pauly - Wissowa - Kroll and Ziegler, Real-Enzyklopädie der klassischen Altertumswissenschaft, Vol. 21, Col. 471 - 592 (in the 1951 ed.). Note especially Col. 578 where the idea of the animation of the earth is traced back to Poseidonius .

the anima terrae and the souls of the planets as well as the human souls. (the anima terrae is) At the same time also a formative power (facultas formatrix) in the earth's interior and expresses, for example, the five regular bodies in precious stones and fossils. In this Kepler follows views also held by Paracelsus. The latter had employed the concept of the Archaeus as ~~the~~ a formative principle of nature which, as signator, also creates the signaturae . As a matter of fact Kepler admitted in his dispute with Fludd that the latter could also call the anima terrae "Archaeus" if he preferred that. <sup>1</sup> It is important that

<sup>1</sup>  
Frisch, Vol. V, p. 440.

in Kepler's view the anima terrae is responsible for the weather and also for meteoric phenomena. Too much rain, for instance,

is an illness of the earth.

Now Kepler's characteristic basic idea concerning the individual soul is that it is, as an <sup>image of God, however imperfect,</sup> ~~essentially imperfect copy of God,~~ partly a point and partly a circle: "anima est punctum qualitativum." This theory goes back to Neo-Platonic and Neo-Pythagorean philosophers of late Antiquity in whose works similar ideas can be found.

<sup>2</sup> According to Sextus Empiricus (Adv. math., III, 22) the point ( *ἄτομον* ) is *ἄσχημα* and not incorporeal; it is the monad and the soul.

According to Plotinus, IV, 4, 16, the soul is fitted like a circle to its own center, hence closely joined to the center, an unextended extension:

On the concept "Inlocalitas animae" (Greek or ἀτομία) in Claudianus Mamertus cf. also the essay by E. Bickel, "Inlocalitas", Zur neupythagoreischen Metaphysik, in Immanuel Kant ( studies in honor of Kant's 100th birthday), Leipzig, Dietrich, 1924; further, F. Bömer, Der lateinische Neuplatonismus und Neupythagoreismus und Claudianus Mamertus in Sprache und Philosophie, Leipzig, 1936, especially pp. 124 and 139.

Which functions of the soul are attributed to the central point and which to the peripheral circle is a somewhat doubtful matter. In general the contemplative and imaginative functions are assigned

to the point, the active and motor effects on the body to the circle. The latter, however, is also supposed to <sup>correspond to the faculty</sup> ~~have the function~~ of rationatio, reflection and logical conclusion. The process of the issuing forth of the soul from the central point to the periphery of the circle is often compared by Kepler to the emanating of a flame. He also emphasizes expressly the analogy of this movement to the rays of light streaming from the sun as center, thus also establishing a connection with the radii that issue from the central point in his symbol of the Trinity. It is not difficult to see this process of the emanation of the soul from the point to the circle as analogous to the extraversion of modern psychology. From the point of view of the latter, creation, in Kepler's system of ideas, would be the divine model, whereas the being of God would have to be regarded as the model of introversion.

The following passage from Harmonices mundi, Book IV (Frisch, Vol. V, p. 258) should make Kepler's view clear:

“<sup>structure</sup> firstly, the soul has the ~~form~~ of a point in actuality (at least by reason of <sup>the conjunction with</sup> ~~ligation~~ to its body), <sup>and</sup> the figure of <sup>a</sup> ~~the~~ circle in potentiality. Now, since it is energy, it <sup>pours itself</sup> ~~issues~~ forth from that <sup>punctiform</sup> ~~abode~~ ~~of the point~~ into <sup>a</sup> ~~the~~ circle. ~~So~~ Whether it is obliged to perceive external things that surround it in spherical fashion or whether it must govern the body ( ~~the~~ ~~body~~ <sup>the</sup> ~~body~~ <sup>the</sup> ~~body~~ <sup>lies</sup> ~~round~~ about it), <sup>the soul</sup> ~~it~~ itself is hidden within, rooted in its fixed point whence it <sup>goes out</sup> ~~issues~~ into the rest of the body) <sup>by a semblance of itself.</sup> ~~its manifestation.~~ But how <sup>should</sup> ~~does~~ it <sup>so out</sup> ~~issue~~ forth if not in a straight line? (for that is truly a “going out”)? How should it have any other way of ~~issuing~~

going out, being

~~itself~~ itself both light and flame, than as the other lights ~~go out~~ <sup>go out</sup> ~~issue~~ from their sources, that is, in straight lines? It goes

out, then, to the exterior of the <sup>body</sup> ~~the~~ according to the same laws by

which <sup>surrounding</sup> ~~the~~ lights of the firmament ~~come~~ <sup>come</sup> in ~~towards~~ <sup>towards</sup> ~~that resides in a point.~~ <sup>the soul</sup> ~~that resides in a point.~~

(Latin: "Primum amicus...")

With this conception of the soul both as point and circle are connected Kepler's special views on astrology, to the discussion of which <sup>he</sup> ~~his~~ above mentioned treatise, Tertius interveniens, he specifically devoted. Here Kepler intervenes as a third party in the dispute between H. Röslinus, representing the point of view of traditional astrology, and P. Feselius, who disparages all astrology as superstition, in order to oppose to both authors his own essentially divergent point of view. On the first leaf of the book, immediately after the title, appears the commentary: "A warning to sundry Theologos, Medicos, and Philosophos, in particular to D. Philippum Feselium, that they should not, in their just repudiation of stargazing superstition, throw out the child with the bath and thus unknowingly act in contradiction to their profession."

Kepler also formulates his ideas on astrology in his earlier treatise on the new star, arguing there against Pico della <sup>in conclusive fashion,</sup> ~~Mirandola~~, and <sup>puts</sup> ~~returns~~ once <sup>more</sup> ~~again~~ to ~~conclude~~ the subject in his chief work, Harmonices mundi.

In what follows we shall first attempt -- setting aside the question of the objective validity of astrological statements -- to characterize Kepler's integration of his own astrology, so different from the usual kind, into the whole system of his ideas on natural science, which is what interests us here.

According to Kepler, the individual soul, which he calls

vis formatrix or also matrix formativa, possesses the fundamental ability to react with the help of the instinctus to certain harmonious proportions which correspond to specific rational divisions of the circle. In music this intellectual power reveals itself in the perception of euphony (consonance) in the case of certain musical intervals, an effect that Kepler thus does not explain in a purely mechanical way. Now the soul is said to have a similar specific reactability to the harmonious proportions of the angles which the rays of stellar light striking the earth form with each other. It is with these that astrology should concern itself in Kepler's opinion. According to him, then, the stars exert no special remote influence, <sup>since</sup> their true distances are of no importance to astrology, and only their light rays can be regarded as effective. The soul knows about the harmonious proportions through the instinctus without conscious reflection (sine ratiocinatione) because the soul, by virtue of its circular form, is an image of God in whom these proportions and the geometric truths following from them exist from all eternity. Now since the soul in consequence of its circular form has knowledge of these, it is impressed by the external forms of the configurations of rays and retains a memory of them from its very birth. I cite Kepler's words on this:

<sup>1</sup> Mysterium Cosmographicum, Frisch, Opera, Vol. I, p. 133. In Caput Nonum Notae Autoris ( in the second ed. of the book).

"I speak here <sup>as do</sup> ~~with~~ the astrologers. ~~But~~ if I should express my own opinion it would be that there is no evil star in the heavens, and ~~in fact for this reason in particular, among others,~~ <sup>this, among others, chiefly for the following reasons:</sup> ~~because of the~~ <sup>is in the</sup> nature of man <sup>as such, dwelling as it does here on</sup> ~~in the realm of~~ earth, which lends <sup>planetary</sup> to the radiations ~~of the planets~~ <sup>their</sup> effect on itself; ~~just~~ as ~~in~~ the sense of hearing, ~~is~~ endowed with the faculty of discerning chords, lends to music such power that it incites him who hears it to dance. I have said much on this point in my reply to the objections of Doctor Röslin to the book On the New Star and in other places, <sup>passim</sup> ~~here and there~~, also in Book IV of the Harmonices, <sup>passim</sup> especially Chapter 7."

~~(Latin "De Astrologia")~~

(Tertius interveniens, No. 40):

<sup>For</sup> ~~whereas~~ the punctum naturale (that is, the natural soul in every human being or also in the terrestrial globe itself) has <sup>as much</sup> ~~the~~ power <sup>as</sup> a real circulum. In puncto inest circulus in potentia propter plagas unde adveniunt radii se mutuo in hoc puncto secantes."

(Ibid., No. 42):

"The natural soul of man is not larger than a single point/ and <sup>upon</sup> ~~in~~ these points the shape and character of the whole heaven, be it a hundred times ~~again~~ as large, / are <sup>imprinted</sup> ~~stamped~~ potentialiter."

(<sup>as it is</sup>)

(Ibid., No. 65):

"The nature of the soul <sup>believes</sup> ~~is~~ like a point; for <sup>this</sup> ~~that~~ reason it can also be transformed into the points of the confluxus

radiatorum."

The soul, according to Kepler, contains the idea of the zodiac within itself <sup>by virtue</sup> because of its inherent circular form; but <sup>it is</sup> the planets <sup>through the transmission</sup> (by virtue of the transmission of light) and not the fixed stars are the effective elements. "The division of the twelve signs among the seven planets" is for him a fable; yet the doctrina directionum, he thinks, is based on good reason since it emphasizes the harmonious combination of two rays of light that is called an "aspect."

In Harmonices mundi, Book IV, Frisch, Vol. V, p. 256, Kepler expresses this with particular clarity:

"Inasmuch as the soul bears within itself the idea of the zodiac, or rather of its center, it also <sup>feels</sup> perceives which planet stands at which time under which degree of the zodiac and measures the angles of the rays that meet on the earth, but inasmuch as it receives from the irradiation of the Divine essence the geometrical figures of the circle and (by comparing the circle with certain of its parts) the archetypical harmonies (not to be sure in purely geometrical form but, as it were, overlaid <sup>or, rather,</sup> completely saturated by a filtrate of glittering radiations), ~~and inasmuch as it~~ also recognizes the measures <sup>means</sup> of the angles, <sup>and some</sup> judges ~~these~~ as congruent or harmonious, ~~some~~ others as incongruent."  
(Latin: "Qualitius igitur...")

The human soul, in Kepler's view, flows at birth into a pre-existent form, which is shaped on the earth by these rays of light from the stars (planets).

p. 30

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z) (aa) (ab) (ac) (ad) (ae) (af) (ag) (ah) (ai) (aj) (ak) (al) (am) (an) (ao) (ap) (aq) (ar) (as) (at) (au) (av) (aw) (ax) (ay) (az) (ba) (bb) (bc) (bd) (be) (bf) (bg) (bh) (bi) (bj) (bk) (bl) (bm) (bn) (bo) (bp) (bq) (br) (bs) (bt) (bu) (bv) (bw) (bx) (by) (bz) (ca) (cb) (cc) (cd) (ce) (cf) (cg) (ch) (ci) (cj) (ck) (cl) (cm) (cn) (co) (cp) (cq) (cr) (cs) (ct) (cu) (cv) (cw) (cx) (cy) (cz) (da) (db) (dc) (dd) (de) (df) (dg) (dh) (di) (dj) (dk) (dl) (dm) (dn) (do) (dp) (dq) (dr) (ds) (dt) (du) (dv) (dw) (dx) (dy) (dz) (ea) (eb) (ec) (ed) (ee) (ef) (eg) (eh) (ei) (ej) (ek) (el) (em) (en) (eo) (ep) (eq) (er) (es) (et) (eu) (ev) (ew) (ex) (ey) (ez) (fa) (fb) (fc) (fd) (fe) (ff) (fg) (fh) (fi) (fj) (fk) (fl) (fm) (fn) (fo) (fp) (fq) (fr) (fs) (ft) (fu) (fv) (fw) (fx) (fy) (fz) (ga) (gb) (gc) (gd) (ge) (gf) (gg) (gh) (gi) (gj) (gk) (gl) (gm) (gn) (go) (gp) (gq) (gr) (gs) (gt) (gu) (gv) (gw) (gx) (gy) (gz) (ha) (hb) (hc) (hd) (he) (hf) (hg) (hh) (hi) (hj) (hk) (hl) (hm) (hn) (ho) (hp) (hq) (hr) (hs) (ht) (hu) (hv) (hw) (hx) (hy) (hz) (ia) (ib) (ic) (id) (ie) (if) (ig) (ih) (ii) (ij) (ik) (il) (im) (in) (io) (ip) (iq) (ir) (is) (it) (iu) (iv) (iw) (ix) (iy) (iz) (ja) (jb) (jc) (jd) (je) (jf) (jg) (jh) (ji) (jj) (jk) (jl) (jm) (jn) (jo) (jp) (jq) (jr) (js) (jt) (ju) (jv) (jw) (jx) (jy) (jz) (ka) (kb) (kc) (kd) (ke) (kf) (kg) (kh) (ki) (kj) (kk) (kl) (km) (kn) (ko) (kp) (kq) (kr) (ks) (kt) (ku) (kv) (kw) (kx) (ky) (kz) (la) (lb) (lc) (ld) (le) (lf) (lg) (lh) (li) (lj) (lk) (ll) (lm) (ln) (lo) (lp) (lq) (lr) (ls) (lt) (lu) (lv) (lw) (lx) (ly) (lz) (ma) (mb) (mc) (md) (me) (mf) (mg) (mh) (mi) (mj) (mk) (ml) (mm) (mn) (mo) (mp) (mq) (mr) (ms) (mt) (mu) (mv) (mw) (mx) (my) (mz) (na) (nb) (nc) (nd) (ne) (nf) (ng) (nh) (ni) (nj) (nk) (nl) (nm) (nn) (no) (np) (nq) (nr) (ns) (nt) (nu) (nv) (nw) (nx) (ny) (nz) (oa) (ob) (oc) (od) (oe) (of) (og) (oh) (oi) (oj) (ok) (ol) (om) (on) (oo) (op) (oq) (or) (os) (ot) (ou) (ov) (ow) (ox) (oy) (oz) (pa) (pb) (pc) (pd) (pe) (pf) (pg) (ph) (pi) (pj) (pk) (pl) (pm) (pn) (po) (pp) (pq) (pr) (ps) (pt) (pu) (pv) (pw) (px) (py) (pz) (qa) (qb) (qc) (qd) (qe) (qf) (qg) (qh) (qi) (qj) (qk) (ql) (qm) (qn) (qo) (qp) (qq) (qr) (qs) (qt) (qu) (qv) (qw) (qx) (qy) (qz) (ra) (rb) (rc) (rd) (re) (rf) (rg) (rh) (ri) (rj) (rk) (rl) (rm) (rn) (ro) (rp) (rq) (rr) (rs) (rt) (ru) (rv) (rw) (rx) (ry) (rz) (sa) (sb) (sc) (sd) (se) (sf) (sg) (sh) (si) (sj) (sk) (sl) (sm) (sn) (so) (sp) (sq) (sr) (ss) (st) (su) (sv) (sw) (sx) (sy) (sz) (ta) (tb) (tc) (td) (te) (tf) (tg) (th) (ti) (tj) (tk) (tl) (tm) (tn) (to) (tp) (tq) (tr) (ts) (tt) (tu) (tv) (tw) (tx) (ty) (tz) (ua) (ub) (uc) (ud) (ue) (uf) (ug) (uh) (ui) (uj) (uk) (ul) (um) (un) (uo) (up) (uq) (ur) (us) (ut) (uu) (uv) (uw) (ux) (uy) (uz) (va) (vb) (vc) (vd) (ve) (vf) (vg) (vh) (vi) (vj) (vk) (vl) (vm) (vn) (vo) (vp) (vq) (vr) (vs) (vt) (vu) (vv) (vw) (vx) (vy) (vz) (wa) (wb) (wc) (wd) (we) (wf) (wg) (wh) (wi) (wj) (wk) (wl) (wm) (wn) (wo) (wp) (wq) (wr) (ws) (wt) (wu) (wv) (ww) (wx) (wy) (wz) (xa) (xb) (xc) (xd) (xe) (xf) (xg) (xh) (xi) (xj) (xk) (xl) (xm) (xn) (xo) (xp) (xq) (xr) (xs) (xt) (xu) (xv) (xw) (xx) (xy) (xz) (ya) (yb) (yc) (yd) (ye) (yf) (yg) (yh) (yi) (yj) (yk) (yl) (ym) (yn) (yo) (yp) (yq) (yr) (ys) (yt) (yu) (yv) (yw) (yx) (yy) (yz) (za) (zb) (zc) (zd) (ze) (zf) (zg) (zh) (zi) (zj) (zk) (zl) (zm) (zn) (zo) (zp) (zq) (zr) (zs) (zt) (zu) (zv) (zw) (zx) (zy) (zz)

Cf. Tertius interveniens, No. 107.

"For it is by no means to be pronounced foolishness that man is naturali necessitate ~~moulded and given his nature~~ <sup>discriminated and qualified</sup> in accordance with the Configurationibus stellarum; ~~which~~ <sup>this</sup> might really far rather be called an influence of the nature of man <sup>into</sup> ~~on~~ the star (as of a fluid into a form) than on the contrary an influence of the star <sup>into</sup> ~~on~~ man."

The effective angles between two rays of light are according to Kepler those that correspond either to <sup>those</sup> regular polygons ~~with~~ <sup>with</sup> which a plane can be covered ~~without a gap, such as~~ <sup>continuously, such as</sup> equilateral triangles, squares, or hexagons; or to star-shaped figures that bear a close relation to <sup>the</sup> regular polyhedra. Here Kepler tries to establish an intimate connection with the proportions appearing in the musical intervals of consonances, <sup>he</sup> but is forced to admit also certain differences between these and the astrologically effective divisions of the circle. I shall not go into the details of this but shall merely reproduce some figures from Kepler's Harmonices mundi. In them can be seen the reciprocal connection of the circumferential figure with a central figure, this connection being such that the peripheral angle between two adjacent sides of the latter is equal to the central angle between the radii to adjacent points of the former, and vice versa.

Fig. 1

Circumferential Figure and Central Figure  
from Kepler's Harmonices mundi

(De Configurationibus Harmonicis, lib. IV, Cap. V.) from Joh. Kepleri Opera omnia, ed. Frisch, Frankfurt, 1864, Vol. V, pp. 238 and 239. Figs. 32, 33, 34, 35.

In Kepler's view, the two figures are supposed to correspond to the circular form and the point form of the soul. I quote the following passage verbally, since these ideas may perhaps be of particular interest psychologically.

Harmonices mundi, Book IV, Frisch, Vol. V, p. 238.

Proposition VI

<sup>same thing</sup>  
 "This ~~can~~ be proved from the inner properties of the soul  
 of which we have already <sup>spoken</sup> ~~spoken~~ in Chap. 3. For since it is <sup>from</sup> the  
 soul <sup>that</sup> ~~which~~ ~~lives~~ to the harmonies of the configurations, their <sup>obtain</sup>  
~~form determined actual being (esse formale),~~ <sup>the soul certainly possesses an intimate knowledge</sup> ~~so will the figures~~  
<sup>of the figures, both</sup> intimately connected with the soul be without doubt now circum-  
<sup>[this knowledge is possessed by virtue of</sup> ferential figures and ~~not~~ central; ~~figures according to the same~~  
<sup>discrimination</sup> by which the soul is ~~not~~ <sup>both</sup> a circle ~~and~~ <sup>and</sup> a point,  
 that is, the center of a circle. But although every soul bears  
 within itself a certain <sup>idea</sup> ~~form~~ of <sup>the</sup> circle, ~~which is~~ not merely  
<sup>abstracted</sup> from matter but also somehow from ~~the~~ magnitude (as  
 has been said in Chap. 3), <sup>so that</sup> ~~whereby~~ (circle and center) in this  
 case, <sup>almost</sup> ~~as it were,~~ coincide and the soul itself can be called  
 either a potential circle <sup>as well as as point differentiated</sup> ~~or a point distinguishable~~ according  
 to directions and thus somehow <sup>qualified</sup> ~~qualitatively comprehensible~~  
 -- nevertheless <sup>there</sup> ~~this distinction~~ must be observed, <sup>the distinction</sup> that some <sup>faculties</sup>  
~~functions~~ of the soul <sup>love</sup> ~~are~~ to be considered rather as circle,  
 others as point. For as one cannot imagine a circle without  
 a center and, conversely, the point has about it ~~a center~~ <sup>an area</sup>

circumscribable by a circular line, so there is ~~no~~ no activity in the soul without an ~~impression~~ <sup>upon the imagination</sup> impression, and, ~~conversely~~ <sup>Conversely</sup> all ~~inner~~ <sup>internal</sup> reception or meditation) ~~is directed toward~~ <sup>is caused by</sup> external movement, ~~every~~ <sup>inward function</sup> ~~inner faculty~~ of the soul ~~is~~ <sup>by outward movements.</sup> directed toward ~~a more external one.~~ What is the ~~principal~~ <sup>principal</sup> and highest faculty of the soul, which is called ~~mens~~ <sup>mind, what is it</sup> if not the center? ~~What~~ The ratiocinative faculty, <sup>which is it</sup> if not the circle?

For as the center is within and the circle without, so the mind [mens] remains within itself, <sup>whereas</sup> ratiocination, ~~however~~ <sup>which is it</sup> ~~providing~~ <sup>leaves</sup> a sort of <sup>outer</sup> covering ~~around~~; and as the center is the basis, source, and origin of the circle, so is the mind of ratiocination.

On the other hand, all these ~~functions~~ <sup>faculties</sup> of the soul ~~both~~ -- the mind ~~and~~ the faculty of ratiocination and even <sup>the sensitive faculty</sup> ~~sensuous perception~~ -- ~~are~~ <sup>whereas</sup> a sort of center, ~~even in relation to~~ the motor functions of the soul <sup>are</sup> the periphery; for again, as the <sup>outer</sup> circle <sup>is drawn</sup> ~~places itself~~ <sup>around</sup> ~~externally~~ <sup>is</sup> round ~~about~~ the center, so <sup>is</sup> action ~~is~~ directed outward, <sup>whereas</sup> cognition and meditation, ~~however~~ are performed inwardly; and as the circle is related to the point so ~~also~~ is outward action ~~related~~ <sup>is</sup> to inner contemplation, and ~~animal~~ <sup>animal</sup> movement to <sup>is</sup> sensuous perception. The point, namely, because it is everywhere opposite to the circumference is suited to represent the passively receptive; and ~~even~~ <sup>sensitive</sup> the ~~soul~~ <sup>soul</sup> ~~is indeed~~ -- ~~that~~

~~which is perceptive of~~ sensitive and receptive to the rays of the planets through ~~feeling~~ -- ~~what else does it do in sensing and perceiving than to be passive,~~ ~~and apperceiving that which it experiences, that is to say, because~~ ~~it is influenced by objects.~~ <sup>What is to say to be moved by that which is opposite to it?</sup> Now compare the two above com-

parisons with each other: as the central point is the same in <sup>cases,</sup> both, so also is the form of cognition somehow the same, <sup>first</sup> the mind and <sup>secondly</sup> the sensuously perceptive soul and then, <sup>to be the senses as well as its analogue,</sup> ~~analogous to it, the soul receptive to the rays of the planets.~~ <sup>that which perceives</sup>

p. 33

Wg, 2 2 r 2 u r r r r  
d, r d, ——— t 2 u r r r t  
r r r r r r r r r r r r r r  
r r r

[cognitive functions]

None of these ~~divisions of the soul~~ makes use of <sup>as such,</sup> the ratiocinative <sup>dispositional</sup> ~~element~~ but has knowledge without it. <sup>thus</sup> Therefore this --

~~soul~~ I mean sublunary nature and also the <sup>sensitive</sup> perceptive faculty -- is a slight image of that <sup>to wit, the principal [faculty], the human mind;</sup> of the human mind in particular, <sup>is a tiny copy of the point,</sup> just <sup>so that</sup> as the logical reasoning <sup>is an image</sup> out of these actions or operations of the soul, <sup>and either</sup> ~~is in both cases~~ an image of <sup>is a</sup> the circle.

In so far then as the souls are <sup>per</sup>ceptive <sup>of</sup> the celestial <sup>radiations</sup> ~~are~~ <sup>are</sup> ~~thus~~ <sup>thus</sup> ~~inwardly~~ <sup>inwardly</sup> moved by them, as it were, with an inward, self = ~~is~~ <sup>is</sup> and, as it were, influenced in their innermost being by the

<sup>obtained movement, must</sup> ~~rather~~ we regard the souls as points; but in so far as they in turn <sup>cause movement</sup> ~~exert an influence themselves~~, that is, transfer the harmonies of <sup>the</sup> radiations that they have perceived into their works and are stimulated by them to action, they ought to be considered as

circles. It follows from this that in so far as the soul ~~wants~~ <sup>takes cognizance of</sup> the harmonies of the rays, it must <sup>chiefly</sup> concern itself with the central figure; <sup>in</sup> in so far ~~however~~ as it acts, provoking meteoric phenomena (or what corresponds to that in ~~the~~ human <sup>being</sup> realm)

it must <sup>devote</sup> ~~adapt~~ itself to the circumferential figure. ~~And since~~ <sup>in an</sup> ~~in an~~ aspect,

<sup>the effect is of greater interest to us than the manner in which</sup> ~~the soul~~ <sup>may be</sup> ~~perceived~~ <sup>by the the soul that operates, therefore</sup> the consideration of the circumferential figure is more important to us than that of the central figure."

So much for the inner and the outer figure of the aspects; the greater importance attributed to the outer figure by Kepler seems to indicate once more a predominantly extrovert attitude. Since the anima terrae causes the weather and, like everything ~~spiritual~~ has the faculty of reacting to the aspects, the weather <sup>partaking of the nature of the soul,</sup>

\* As defined in TV, 5, Finck, vol. V, p. 235.

must be sensitive to these aspects. Kepler is convinced that he has ~~proved~~ proved this in numerous reports on the weather, and then, conversely, regards ~~this~~ as proof of the existence of the anima terrae. The animistic conception of the cause of planetary movement, of which we have already spoken, leads Kepler to the assumption of a universal connection between the phenomena of the heavens and the receptive faculties of the individual souls.

(De Stella nova Serpentarii, Cap. 28, Frisch, Vol. II, p. 719):

"Nothing exists or happens in the visible <sup>leavers</sup> ~~heaven~~ the <sup>significance</sup> ~~sensation~~ of which is not extended further, by way of some <sup>overall principle</sup> ~~hidden relation~~, to the earth and ~~the~~ <sup>the</sup> ~~spiritual~~ faculties of natural things; and thus these <sup>animals</sup> ~~spiritual~~ faculties are affected here on earth exactly as the heavens <sup>themselves are</sup> ~~is~~ affected."

*H. J. ...*

It is interesting that Kepler tries to <sup>supplement</sup> ~~associate with~~ the passive, receptive <sup>manifestation</sup> expression of the vis formatrix <sup>by</sup> an active effect of the same <sup>vis formatrix in</sup> ~~force~~ by making it responsible for the morphology of plants. Whatever is sensitive to harmonious forms can also produce harmonious forms such as, for example, the blossoms of plants with their regular number of petals, and vice versa. He therefore raises the question as to whether the vegetative soul of plants <sup>is too,</sup> has the ability to react to the proportions of the planetary rays but leaves it open because he will not make any assertions without having performed experiments of his own.

It is apparent from what has been said above that in Kepler's

theoretical ideas astrology has been completely ~~integrated~~ <sup>integrated with</sup> scientific-causal thinking; ~~because of the~~ <sup>in</sup> strong ~~emphasizing~~ <sup>he made it</sup> the role of the light rays ~~to become~~ a part of physics and, indeed, of optics. The ~~assumption of an~~ astrological effectiveness of directions that are geometrically defined <sup>in</sup> relation to the ~~fixed star heaven~~ <sup>sphere of the fixed stars but</sup> and do not coincide with light rays (as, for example, the direction from the earth to the vernal point) is expressly rejected by Kepler. Furthermore, he stresses again and again the fact that in his view astrological effects are not caused by ~~planets~~ <sup>the celestial bodies</sup> but rather by the individual souls with their specifically selective reactability to certain proportions. Since this power of reacting receives, on the one hand, influences from the corporeal world and is based, on the other hand, on ~~a reflection~~ <sup>the image relation</sup> to God, these individual souls (the anima terrae and the anima hominis) become for Kepler essential ~~protagonists~~ <sup>exponents</sup> of ~~world~~ <sup>cosmic</sup> harmony (harmonia mundi).

Kepler's peculiar conception of astrology met with no recognition. ~~Indeed~~ <sup>fact,</sup> if one proceeds on this basis it hardly appears possible to avoid the empirically ~~quite~~ untenable conclusion that artificial sources of light should also be able to produce astrological effects. In general I should like to remark in criticism of astrology that, in consequence of the vague character of its pronouncements (including the famous horoscope that Kepler drew up for Wallenstein), I see no reason to concede to horoscopes any objective significance independent of the subjective psychology of the astrologer.

<sup>1</sup> Cf. on this point also the negative result of the statistical

experiment described by C.G.Jung in Chap. II of his work entitled Synchronicity as a Principle of Acausal Connections. See the first contribution in this volume.

6. Kepler's views on ~~world~~<sup>cosmic</sup> harmony, ~~which are~~ essentially based on quantitative, mathematically demonstrable premises, were incompatible with the point of view of an archic<sup>a</sup>-magical description of nature as is represented by the chief work of ~~the~~<sup>a</sup> respected <sup>physician</sup> ~~doctor~~ and Rosicrucian, Robert Fludd of Oxford ( Utriusque Cosmi Maioris scilicet et Minoris Metaphysica, Physica atque technica Historia, first ed., Oppenheim, 1621). In an appendix to Book V of the Harmonices mundi<sup>1</sup> Kepler criticized this work of Fludd's

1 } Frisch, Vol. V, p.328 - 334.

very violently. Fludd, as the representative of traditional alchemy, published in his treatise Demonstratio quaedam analytica<sup>2</sup>

2 } Francofurti, Typis Erasmi Kempferi, 1621.

a detailed polemic directed against Kepler's Appendix, whereupon the latter replied with an Apologia<sup>3</sup> that was followed by a

3 } Frisch, Vol. V, p. 413 - 468.

Replicatio<sup>4</sup> from Fludd.

4 } Francofurti, apud Joan. Theodor. De Bry, 1622.

The intellectual "counter-world" with which Kepler here clashed is an archaistic-magical description of nature culminating in a mystery of trans<sup>mutation</sup>mutation. It is the familiar alchemistic process that by means of various chemical procedures releases from the prima materia the world soul dormant in it, and in so doing both redeems matter and transforms the adept. Fludd, unlike Kepler, had no original ideas of his own to proclaim; even his alchemistic notions are formulated in a very primitive form. The ~~cosmos~~<sup>universe</sup> is divided into four spheres, corresponding to the ancient doctrine of the four elements. The highest is the empyrean, the world of spirits, followed in descending order by the ether as the link with the sphere of the elements and sub-lunary things, and, at the bottom, <sup>by</sup>the earth, which is also the seat of the devil. The world is the mirror image of the invisible Trinitarian God who reveals himself in it. Just as God is symbolically represented by an equilateral triangle so there is a second, reflected triangle below that represents the world. This can be clearly seen from the following figure taken from Fludd's above mentioned chief work, Utriusque Cosmi etc. (cf. Plate I).

Beside the upper triangle is the explanation I:

"That most divine and <sup>most beautiful</sup>~~perfectly formed~~ Object [God] seen in the murky mirror of the world drawn underneath."

Referring to the lower triangle II :

"The shadow, simulacrum, or reflection of the incomprehensible triangle seen in the mirror of the world."

In the upper triangle Hebrew characters to be translated "Jahve" (?).

In the text below we read III:

"Yet in so far as Hermes Trismegistus called the world the image of God Himself <sup>in the form</sup> to that extent -- I maintain -- can the image of God Himself (and ~~is~~ simulacrum) ~~in the world~~ <sup>discerned in the spirit of the world</sup> be ~~deceived~~ like the reflection of a man in a mirror."

The two polar fundamental principles of the <sup>universal</sup> ~~cosmos~~ are form as the light principle coming from above and matter dwelling in the earth (as the dark principle). All beings from angels to minerals are differentiated only according to their greater or lesser light content. A constant struggle goes on between these polar opposites: from below, the material pyramid grows upward from the earth like a tree, the matter becoming finer toward the top; at the same time the formal pyramid grows downward with its point on the earth, exactly mirroring the material pyramid. Fludd never distinguishes clearly between a real, material process and a symbolical representation. Because of the analogy of the microcosm to the macrocosm the chemical process is indeed at the same time a reflection of the whole <sup>universal</sup> ~~cosmos~~. The two movements, the one downward and the other upward, are also termed sympathy and antipathy or, with reference to the Cabala, "voluntas" and "noluntas" Dei. After the withdrawal of the formal light principle matter remains behind as the dark principle, though it was latently present before as a part of God. <sup>1</sup>

<sup>1</sup> This agrees with the Tsimtsum (Withdrawal) theory of the

(149)

Cabalist Isaac Luria (1539 - 1572; lived in Safêd in Palestine). Cf. G. Scholem, Major Trends in Jewish Mysticism, N.Y., 1946, the seventh lecture. It seems to me that this mystical doctrine must be regarded as one of the attempts to harmonize the Aristotelian and alchemistical ideas of the in creatum of the prima materia, which Fludd also accepts in its essentials, with the Biblical doctrine. The idea ~~of the existence of~~ <sup>that</sup> matter <sup>existed</sup> from all eternity is also specifically advocated by the Italian philosopher, G. Zabarella (1532 - 1580).

In the middle, the sphere of the sun, where these opposing principles just counterbalance each other, there is engendered in the mystery of the chymic wedding the infans solaris, which is at the same time the liberated world soul. This process is described in a series of pictures (picturae) ~~that~~ <sup>which</sup> Fludd also designates as "hieroglyphic figures" or "aenigmata". The illustrations on Plates II to IV will serve as examples of this.

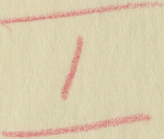
In agreement with old Pythagorean ideas Fludd evolves from the proportions of the parts of these pyramids the cosmic music, in which the following simple musical intervals play the chief part.

Disdiapason	Double octave,	<u>Proportio quadrupla</u>	4:1
Diapason	Octave,	<u>Proportio dupla</u>	2:1
Diapente	Fifth,	<u>Proportio sesquialtera</u>	3:2
Diatessaron	Fourth,	<u>Proportio sesquitertia</u>	4:3

This is expressed in the characteristic figure on Plate V representing the "monochordus mundanus". It may be remarked that

the idea of cosmic music also appears in the works of the alchemist Michael Majer.

Fludd's general standpoint is that true understanding of world harmony, and thus also true astronomy, are impossible without a knowledge of the alchemistic or Rosicrucian mysteries. Whatever is produced without knowledge of these mysteries is an arbitrary, subjective fiction. According to Kepler, on the other hand, only that which is capable of quantitative, mathematical proof belongs to objective science, the rest is personal. It is already apparent from the concluding words of the aforementioned Appendix to Book V of the Harmonices mundi<sup>1</sup> that Kepler had to fight in order to



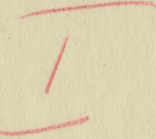
<sup>1</sup> Frisch, Vol. V, p. 334.

justify the adoption of strict mathematical methods of proof:

"From this brief discussion I think it is clear that although a knowledge of the harmonious proportions is very necessary in order to understand the ~~close~~<sup>dense</sup> mysteries of the exceedingly profound philosophy that Robert [Fludd] teaches, nevertheless the latter, who has even studied ~~my~~<sup>whole</sup> work, will <sup>for the time being,</sup> remain no less far removed from ~~these~~<sup>those</sup> perplexing mysteries than ~~these themselves~~<sup>these</sup> [the proportions] <sup>have</sup> recede <sup>d. [for him]</sup> from the ~~most~~ accurate certainty of mathematical demonstrations."

(Latin: "Ex his patet.")

Fludd's aversion to all quantitative mensuration is revealed in the following passages from one of his works:



<sup>2</sup> Demonstratio analytica, p. 5.

"What he [Kepler] has expressed in many words and long discussion I have compressed into a few words and explained by means of hieroglyphic and exceedingly significant figures, not, to be sure, for the reason that I delight in pictures (as he says elsewhere) but because I (as one of whom he [Kepler] seems ~~in fact~~ to hint further below that he ~~identifies himself~~ *associates* with alchemists and Hermetic philosophers) had resolved to bring together much in little and, in the fashion of the alchemists to collect the extracted essence, <sup>to</sup> reject the sedimentary substance; and <sup>to</sup> pour what is good into its proper vessel, ~~so that by means of~~ *So that* such revelation ~~of~~ the mystery of science, ~~what is hidden shall be made~~ *having been revealed, that what is* manifest, and <sup>that</sup> the inner nature of the thing, after the outer vestments have been stripped off, <sup>may not be enclosed,</sup> as a precious gem set in a gold ring, ~~is enclosed~~ in a figure best suited to its nature, ~~and~~ *--- a* which its <sup>essence</sup> ~~essential nature~~ can be beheld by eye and spirit as in a mirror and without <sup>many = words</sup> ~~extensive~~ circumlocution."  
*(Latin: "quod videtur")*

Ibid., p. 12:

*is for the ~~commonplace~~ vulgar*  
 "For it is ~~the~~ *habit* of the ordinary mathematicians to concern themselves with ~~the~~ *quantitative* shadows ~~of quantities~~; the alchemists and Hermetic philosophers, however, comprehend the true ~~narrow~~ *core* of <sup>the</sup> natural bodies."

Ibid., p. 13:

"By the select mathematicians who have been schooled in formal mathematics naked nature is measured and revealed; for the spurious and blundering ones, however, she remains invisible and hidden.

The latter, that is, measure the shadows instead of the substance and nourish themselves on unstable opinions; whereas the former, rejecting the shadow, grasp the substance and are gladdened by the sight of truth."

*(Latin: "a mathematicis")*

"But here lies hidden the whole difficulty, because he [Kepler] excogitates the exterior movements of the thing <sup>created</sup> ~~that has been~~ <sup>1</sup> ~~created~~ <sup>2</sup> whereas I contemplate <sup>3</sup> the internal and essential impulses

*begin p. 37*

<sup>1</sup> res naturata: the actually existing natural object.

<sup>2</sup> Kepler "puzzles out", Fludd "beholds".

$\phi$  <sup>3</sup>

*The motus exteriore and actus interiore*  
The contrast between ~~res and actus~~ <sup>the result of the</sup> ~~the result of the~~ <sup>actus</sup> ~~the result of the~~ <sup>the creative impulse</sup> ~~the result of the~~ <sup>the creative impulse</sup>

*interiore, physical motion for contrast to*  
inner vision *in the things produced by nature, the latter in "nature herself"*

that issue from nature ~~of~~ self; he has hold of the tail, I grasp the head; I perceive the first cause, he its effects. And even though his outermost movements may be (as he says) real, nevertheless he is stuck <sup>too</sup> fast in the filth and clay of the impossibility of his doctrine and ~~bound by~~ <sup>perplexed, is too firmly bound by</sup> ~~perplexing~~ <sup>hidden</sup> ~~perplexing~~ <sup>chains too</sup>

*fetters*

~~must~~ to be able to free himself easily from those snares without damage to his honor and ransom himself from captivity cheaply. <sup>1</sup>

<sup>1</sup> minimo: for a small price.

And he who digs a pit for others will unwittingly fall into it himself." <sup>2</sup>

actus interiores — ipse

— res — " natura

actus exteriores, res

— res — " natura

" + res naturata

2  
Fludd, Discursus analyticus, p. 36.

Such a rejection of everything quantitative in favor of the "forma" (we should say for "forma": symbol) is obviously completely incompatible with scientific thinking. Kepler replies to the above as follows:

3  
Frisch, Vol. V, p. 424

*enigmas -- harmonies, I should say --*

".....When I pronounce your ~~so-called harmonious~~ symbols obscure I speak according to my judgment and understanding, and I have you yourself as an aid in this since you refuse to subject your [scientific] purpose to mathematical tests without which I am like a blind man."

*Wolff: "and picture"*

*then, can*

The disputants, ~~consequently~~ no longer even agree on what to call light and what dark. Fludd's symbolical picturae and Kepler's geometrical diagrams present an irreconcilable contradiction. It is, for example, easy for Kepler to point out that the dimensions of the planetary spheres assumed in Fludd's figure of the monochordus mundanus represented above do not correspond to the true, empirical dimensions. When Fludd retorts that <sup>the</sup> "sapientes" are not agreed as to the ultimate dimensions of the spheres and that these are not essentially important, Kepler remarks very pertinently that the quantitative proportions are essential where music is concerned, especially in the case of the proportion 4:3 which is characteristic of the interval of the fourth. Kepler naturally objected, furthermore, to Fludd's assumption that the earth and not the sun <sup>is</sup> ~~was~~ the center of the planetary spheres.

Fludd's depreciation of everything quantitative, which in his

opinion belongs, like all division and all multiplicity, to the dark principle (matter, devil),<sup>1</sup> resulted in a further essential

<sup>1</sup>  
Replicatio, p. 27, on Franciscus Georges Venetus:

"He concludes therefore that the soul is one and simple, but <sup>when</sup> descending to the lower things can be called divisible.

And this is the reason for ~~birth and decay~~ <sup>generation and corruption</sup> in the lower ~~things~~ <sup>spheres</sup>.  
For this reason, ~~Pythagoras~~ Pythagoras says, writing to Eusebius:

"God is in unity but in duality is the Devil and evil, because in the latter is material multiplicity....?"

*Latin: "concludit istud"*

Replicatio, p. 37:

"Matter, <sup>expanding</sup> ~~which is always~~ <sup>in multitude</sup> in ~~multiplicity~~ and not in form, <sup>which latter</sup> ~~is~~ is always connected uninterruptedly with its shining source."<sup>2</sup>

difference between Fludd's and Kepler's views concerning the position of the soul in nature. The sensitivity of the soul to proportions, so essential according to Kepler, is in Fludd's opinion only the result of its entanglement in the (dark) corporeal world, whereas its imaginative faculties, that recognize unity, spring from its true nature originating in the light principle (forma). While Kepler represents the modern point of view that the soul is a part of nature, Fludd even protests against the application of the concept "part" to the human soul, since the soul, being freed from the laws of the physical world, that is, in so far as it belongs to the light principle, is inseparable from the whole world soul (see ~~t~~ Appendix I).

Kepler is obliged to reject the "formal mathematics" that  
 Fludd opposes to "vulgar" mathematics.<sup>1</sup>

<sup>1</sup> Frisch, Vol. V, p. 460, Apologia.

"If you know of another mathematics (besides that *vulgar*  
 one from which all those hitherto celebrated as mathematicians  
 have received their name), that is, a mathematics that is both  
 natural and formal, I must confess that I have never tasted of it,  
 unless we take refuge in the most general origin of the word  
 [teaching, doctrine] and give up the quantities. Of that, you  
 must know, I do not speak here. You, Robert, may keep for yourself  
 its glory and that of the proofs to be found in it -- and how  
 accurate and how certain those are, that, I think, you will judge  
 for yourself without me. I reflect on the visible movements  
 determinable by the senses themselves, you may consider the inner  
impulses and endeavor to distinguish them according to grades.  
I hold the tail but I hold it in my hand; you may grasp the head  
mentally, *though only, I fear, in your dreams.*  
~~if only you are not dreaming.~~ I am content with the  
 effects, that is, the movements of the planets. If you shall  
 have found in ~~these~~ *the very* causes harmonies as limpid as are mine in the  
 movements, then it will be ~~reasonable~~ *proper* for me to congratulate you  
 on your gift of invention and myself on my gift of observation --  
 that is, as soon as I ~~am~~ *shall be* able to observe *anything*."  
*(Latin: "mathematica est...")*

The situation is, however, not as simple as Kepler here  
 represents it to be. His theoretical standpoint is after all  
 not purely empirical but contains elements as essentially

speculative as the notion that the physical world is the realization of pre-existent archetypical images. It is interesting that this speculative side of Kepler (~~was~~ here not avowed) is matched by a less obvious empiristic tendency in Fludd. The latter tried in fact to support his speculative philosophy of the light and dark principle by means of scientific experiments with the so-called "weather-glass". Since this attempt casts light on what seems to us an extremely bizarre episode in the intellectual history of the seventeenth century, I should like to say something more about it at this point, although the relevant passages are only to be found in a late work of Fludd's, the Philosophia Moysaica, Gouda, 1637, which did not appear until after Kepler's death.

The weather-glass was constructed by <sup>immersing, (opening downward,</sup> plunging a glass vessel, <sup>receptacle filled with water,</sup> containing air rarified by heating into a water bath so that the ~~openings were submerged.~~ <sup>The air contained in the vessel having been rarified by heating, a</sup> ~~The level of the~~ column of water <sup>will rise within its level</sup> ~~in the vessel is then~~ determined by both temperature and air pressure. The latter concept, however, was not known before Toricelli, and the temporary variations in the water level, <sup>that</sup> ~~were~~ (in part caused) by variations in the air pressure, were usually interpreted as <sup>resulting from only the</sup> variations in temperature. On being warmed the column of water falls, on being cooled it rises as a result of the expansion and contraction of the air remaining above the column of water. The instrument, a kind of combined thermometer and barometer, behaves, of course, in a way opposite to what we are used to.

<sup>1</sup> On the history of this instrument cf. G. Boffito, Gli strumenti della scienza e la scienza degli strumenti, Florence, 1929, where

reference is made (Pl. 66) to an illustration and description of the "weather-glass" in Giuseppe Biancani's Sphaera Mundi, Bologna, 1620, p. 111, and also to Galileo's similar instrument called a "thermoscope" (Pl. 115).

I owe this bibliographical information to the kindness of Prof. E. Panofsky of Princeton.

From Plate VI and the following quotations from the Philosophia Moysaica it is apparent how Fludd regards the weather-glass as a symbol of the struggle between the light and dark principles in the macrocosm, a subject which has already been discussed here. The triangles on Plate VI are the same as those in the earlier figures (Plates I - IV).

Fludd, Philosophia Moysaica, Gouda, 1637 (I, 1, 2 fol. altera).

"That the instrument commonly called a weather-glass is falsely arrogated unto themselves by some contemporaries; ~~inasmuch as~~ <sup>that is, that</sup> they falsely boast of it as being their own invention."

"So zealously avid of renown and greedy for fame and reputation is man that how and by what right he acquires them, still less whether by straight or crooked means, is of small concern to him. This alone was the reason why the heathen philosophers ascribed to themselves fraudulently those philosophical principles that <sup>by</sup> ~~according to the~~ highest right belonged to the wise and divine philosopher Moses, and veiled and, as it were, gilded this theft of theirs by means of new names or titles, so that in this fashion they could show them off as having been due to their own invention (as will be enlarged upon below). In a quite similar way this experimental instrument or glass of <sup>our</sup> ~~our~~ has many spurious or

illegitimate inventors who, by altering the form of the original somewhat, boast that they have first thought of this idea (inventionem) by themselves. As far as I am concerned, I judge it to be just and honest to attribute to anyone what is his: for it is no shame to me to ascribe the principles of my philosophy to my teacher Moses who received them <sup>himself</sup> ~~indeed~~ formed and <sup>written down</sup> ~~described~~ by the finger of God. And therefore I cannot in justice arrogate to myself, or claim, the ~~prior~~ invention of this instrument, although I have made use of it, in my history of the natural macrocosm and elsewhere in order to prove the truth of my philosophical argument. (albeit in other form) And I confess that I found it verbally specified and geometrically delineated in a manuscript at least fifty years old. First then, I shall explain to you the form in which I found it in that old <sup>record</sup> ~~monument~~ [ ] just mentioned; then I shall describe its shape and position as it is commonly known and used among us."

*Hacten "Quod instrumentum"*

Fludd, Philosophia Moysaica, Fl. 27 v. (I, III).

Before we proceed to our ocular demonstration, which will be performed by means of our experimental instrument, we ought first to consider that the general air, that is, the general element of the sublunary world, is the thinner and more spiritual portion of the 'waters beneath the firmament' of which Moses makes mention. Therefore it is certain that any part of this air corresponds to its whole, and consequently the air enclosed in the glass of this Instrument is of the same nature and <sup>condition</sup> ~~habit~~ as the general world air. Wherefore it is clear that, because of the continuity between the two, the general air of the sublunary world

behaves in its disposition exactly like the partial air enclosed in the glass which is a part of the general air; and this in turn behaves like the Spirit Ruah-Elohim that hovered above the waters, animated them by his presence, enlivened and informed them, and expanded them by giving them motion; so that in his absence, that is, upon the cessation of his actuating force and active emanation or upon the contraction of the activity of his rays back into himself, the waters then ~~are~~ correspondingly contracted, condensed, darkened, and <sup>were</sup> rendered motionless and quiet.."  
 (Latin: "Prisquam ad oculum deus...")

In view of this description one would almost be inclined to call the weather-glass in Fludd's sense a "noluntometer."

It is significant for the psychological contrast between Kepler and Fludd that the number four has (for Fludd) a special symbolical character, which, as we have seen, ~~is~~ Kepler's ~~case~~ <sup>is not true of</sup> ~~this does not hold~~. A quotation from Fludd's Discursus Analyticus, given in ~~the~~ Appendix II, will throw ~~some~~ light on this matter.

<sup>we hope,</sup> ~~We hope that~~ From what has been said above the reader has gained some understanding of the prevailing atmosphere of the first half of the seventeenth century when the then new, quantitative, scientifically mathematical way of thinking collided with the alchemistic tradition expressed in qualitative, symbolical pictures: the former represented by the productive, creative Kepler always struggling for new modes of expression, the latter by the epigone Fludd who could not help but feel clearly the threat to his world of mysteries, already become archaic, from the new alliance of empirical induction with mathematically logical thought. One

has the impression that Fludd was always in the wrong when he let himself be drawn into a discussion concerning astronomy or physics. As a consequence of his rejection of the quantitative element he perforce remained ~~ignorant~~<sup>unconscious</sup> of its laws and inevitably came into irreconcilable conflict with scientific thinking.

Fludd's attitude, however, seems to us somewhat easier to understand when it is viewed in the perspective of a more general differentiation between two types of mind, a differentiation that can be traced throughout history, the one type considering the quantitative relations of the parts to be essential, the other the qualitative indivisibility of the whole. We already find this contrast, for example, in Antiquity in the two corresponding definitions of beauty: in the one it is the proper agreement of the parts with each other and with the whole, in the other (going back to Plotinus) there is no reference to parts but beauty is the eternal radiance of the "One" shining through the material phenomenon.<sup>1</sup> An analogous contrast can also be found later in the

<sup>1</sup> The controversy between these two definitions of beauty plays an important role particularly in the Renaissance, where Ficino took his stand entirely on the side of Plotinus.

well-known quarrel between Goethe and Newton concerning the theory of colors: Goethe had a similar aversion to "parts" and always emphasized the disturbing influence of ~~apparatus~~<sup>instruments</sup> on the "natural" phenomena. We should like to advocate the point of view ~~here~~ that these controversial attitudes are really illustrations of the psychological contrast between feeling type or intuitive

type and thinking type. Goethe and Fludd represent the feeling type and the intuitive approach, Newton and Kepler the thinking type; even Plotinus should probably not be called a systematic thinker, in contrast to Aristotle and Plato.

<sup>2</sup>  
 In so far as scientific thought based on the cooperation of experiment and theory is a combination of thinking and sensation, its opposite pole can be more precisely expressed by the term "intuitive feeling." On Plotinus cf. also Schopenhauer, Fragmente zur Geschichte der Philosophie, 7 : Neuplatoniker.

Just because the modern scholar prefers in principle not to ascribe to either of these two opposite types a higher <sup>degree of</sup> consciousness than <sup>to</sup> the other, the old historical dispute between Kepler and Fludd may still be considered interesting as a matter of principle even in an age for which both Fludd's and Kepler's scientific ideas on world music have lost all significance. An added indication of this can be seen in particular in the fact that the "quaternary" attitude of Fludd corresponds, in contrast to Kepler's "trinitarian" attitude, <sup>from a</sup> ~~to~~ psychologically <sup>point of view, to a</sup> greater completeness of experience. <sup>1</sup>

<sup>1</sup>  
 This is in harmony with the older alchemistic texts according to which only the totality of all four elements makes it possible to produce the quinta essentia and the lapis, that is, <sup>the</sup> actual ~~transmutation~~, transmutation. -- Further remarks on the symbolism of the numbers three and four will be found in ~~the~~ Appendix III.

Whereas Kepler conceives of the soul almost as a mathematically describable system of resonators, it has always been the symbolical

image that has tried to express, in addition, the immeasurable side of experience which also includes the imponderables of the emotions and emotional evaluations. Even though at the cost of consciousness of the quantitative side of nature and its laws, Fludd's "hieroglyphic" figures do try to preserve a unity of the inner experience of the "observer" (as we should say to-day) and the external <sup>processes</sup> ~~course~~ of nature and thus a wholeness in <sup>its</sup> ~~the~~ contemplation, ~~of nature~~, a wholeness ~~that was~~ formerly contained in the idea of the analogy ~~of the~~ <sup>between</sup> microcosm <sup>and</sup> ~~to the~~ macrocosm but ~~that seems~~ <sup>apparently</sup> already ~~to be~~ lacking in Kepler and lost in <sup>the</sup> ~~the~~ <sup>world</sup> view ~~of the cosmos~~ <sup>of</sup> classical natural science.

2  
As modern parallels to this tendency toward unity and wholeness cf. especially C.G.Jung's study, Synchronicity as a Principle of Acausal Connections (the first essay in this volume), and also his essay, Der Geist der Psychologie, in the Eranos-Jahrbuch, 1946.

Modern quantum physics again stresses the factor of the disturbance of phenomena through measurement, (see the <sup>following</sup> ~~next~~ section), and modern psychology again utilizes symbolical images as raw material (especially those that have originated spontaneously in dreams and fantasies) in order to recognize processes in the collective ("objective") psyche. Thus physics and psychology reflect again for modern man the old contrast between <sup>the</sup> quantitative and <sup>the</sup> qualitative. Since the time of Kepler and Fludd, however, the possibility of <sup>bridging</sup> ~~a bridge between~~ the extreme poles of this antithetical pair has become ~~so~~ less remote. On the one hand, the idea of complementarity in modern physics has demonstrated to us, in a new kind of synthesis, that the contradiction in the

applications of old contrasting conceptions (such as atom and wave) is only apparent; on the other hand, the usefulness of old alchemical ideas in the psychology of C.G. Jung points to a deeper unity of psychical and physical occurrences. To us, unlike Kepler and Fludd, the only acceptable point of view appears to be the one that recognizes both sides of reality -- the quantitative and the qualitative, the physical and the psychical -- as compatible with each other, and ~~that~~ can embrace them <sup>simultaneously,</sup> ~~in a synthesis.~~

7. It is obviously out of the question for modern man to revert to the archaistic point of view that paid the price of its unity and completeness by a naive ignorance of nature. His strong desire for a greater unification of his ~~idea of the cosmos,~~ <sup>world view,</sup> however, impels him to recognize the significance of the pre-scientific stage of knowledge for the development of scientific ideas -- a significance of which mention has already been made at the beginning of this essay -- by ~~subordinating~~ <sup>supplementing</sup> the investigation of scientific knowledge ~~to men's external world~~ <sup>directed outward,</sup> ~~by~~ <sup>by</sup> an investigation of ~~this~~ <sup>knowledge,</sup> ~~factors in his interior.~~ <sup>directed inward.</sup> Whereas ~~the~~ former process is devoted to adjusting our knowledge to external objects; the latter should bring to light the archetypal images used in the creation of our scientific concepts. Only by ~~a combination of~~ <sup>combining</sup> both ~~directions~~ <sup>these</sup> of research, ~~the~~ <sup>may</sup> complete understanding be obtained. ~~Among scientists in particular, the generally shared~~ <sup>Among scientists in particular, the universal</sup> desire for a greater unification of our ~~idea of the cosmos~~ <sup>world view,</sup> is greatly intensified ~~for scientists in particular~~ by the fact that, though we now have natural sciences, we no longer have a total scientific <sup>picture</sup> ~~view~~ of the world. ~~Every~~ Since the discovery of the energy quantum physics has ~~indeed~~ <sup>indeed</sup> ~~been~~ <sup>gradually</sup> forced to relinquish its proud claim to be able to understand, in principle, the whole world.

This very circumstance, however, as a correction of earlier one-sidedness, could contain the germ of progress toward a unified conception of the entire cosmos of which the natural sciences are only a part.

I shall try to demonstrate this by reference to the still unsolved problem of the relationship between occurrences in the physical world and those in the soul, a problem that had already engaged Kepler's attention. After he had shown that the optical images on the retina are inverted in relation to the original objects he baffled the scientific world for a while by asking why then people did not see objects upside down instead of upright. It was of course easy to recognize this question as only an illusory problem, since man is in fact never able to compare images with real objects but only registers the <sup>ory</sup>sensuous impressions that result from the stimulation of certain <sup>areas of</sup>~~places on~~ the retina. The general problem of the relation between psyche and physis, between the inner and the outer, can, however, hardly be said to have been solved by the concept of "psychophysical parallelism" which was advanced in the last century. <sup>yet</sup> modern ~~natural~~ science <sup>may have</sup> ~~has never~~ ~~theless~~ brought us ~~perhaps~~ closer to a more satisfying conception of this relationship by setting up, within the field of physics, the concept of complementarity. It would be most satisfactory of all if physis and psyche could be seen as complementary aspects of the same reality. We do not yet know, however, whether or not ~~it~~ <sup>we</sup> ~~is here~~ <sup>are</sup> ~~confronted~~ <sup>here confronted</sup> question -- as <sup>summed by</sup> Bohr and other scientists ~~conceive~~ -- ~~it~~ <sup>with</sup> a true complementary relation, involving mutual exclusion, in the sense that an exact observation of the physiological processes would result in such an interference with the psychical processes that the latter would ~~simply withdraw~~ ~~from~~ observation. It is, however,

*become downright inaccessible to*

certain that modern physics <sup>has generalized</sup> ~~expresses~~ the old confrontation of  
 the <sup>apprehending</sup> subject ~~that knows~~, on the one hand, with the <sup>apprehended</sup> object, ~~that is~~  
~~known~~, on the other, <sup>into</sup> ~~in the non-general terms~~ of the idea of ~~the~~ <sup>a cleavage</sup>  
<sup>or division that exists</sup> ~~cleavage~~ <sup>the</sup> ~~between~~ observer or means of observation <sup>he</sup> and the system  
 observed, <sup>on the other.</sup> While the existence of such a ~~cleavage~~ <sup>division</sup> is a necessary  
 condition of human cognition, <sup>modern physics holds that its placement</sup> ~~the latter conceives of the position~~  
~~of the cleavage~~ <sup>is</sup> to a certain extent, arbitrary and ~~the~~ <sup>of expediency</sup> results  
<sup>from</sup> ~~a choice~~ <sup>is</sup> ~~determined~~ <sup>is</sup> by ~~practical~~ <sup>of expediency</sup> considerations and hence  
 partially free. Furthermore, whereas older philosophical systems  
 have located the psychical on the subjective side of the <sup>division</sup> ~~cleavage~~, that  
 is, on the side of the <sup>apprehending</sup> subject ~~that knows~~, and the material on the  
<sup>-- the side of that which is by</sup> ~~other side~~ <sup>--</sup> that of the objective observed, the modern point of  
 view is in this respect more liberal: microphysics shows that  
 the means of observation can also consist of apparatus that registers  
 automatically; modern psychology, on the other hand, proves that  
 there is on the side of <sup>that which is</sup> ~~the~~ (introspectively observed) an unconscious  
 psyche of considerable objective reality. <sup>Thereby</sup> ~~By this means~~, the presumed  
 objective order of nature is <sup>on the one hand</sup> ~~relativized~~ with  
 respect to the <sup>no less indispensable</sup> ~~intrinsic~~ means of observation located  
 outside the observed system; <sup>and</sup> ~~while~~, on the other, <sup>and</sup> ~~and~~ it is placed  
 beyond the distinction of "physical" <sup>and</sup> "psychical". <sup>there is a basic difference between</sup>  
<sup>what cannot be taken into consideration by</sup>  
 Now, the observers, or <sup>instruments</sup> ~~the means~~ of observation, ~~that~~ modern  
 microphysics, ~~must take into consideration are essentially different~~  
~~and from~~ the detached observer of classical physics. By the latter  
 I mean one who is ~~to be sure~~ not necessarily without effect on the  
 system observed but whose influence can <sup>always</sup> ~~in any case~~ be eliminated  
 by determinable corrections. In microphysics, <sup>however</sup> ~~on the other hand~~,  
 the natural laws are of such a kind that every bit of knowledge

gained from a measurement must be paid for by the loss of other, complementary items of knowledge. Every observation, therefore, ~~is an~~ <sup>s</sup>interference on an indeterminable scale both with the medium of observation and with the (observed system) and interrupts the causal connection of the phenomena preceding it with those following it. This uncontrollable interaction between observer and (observed system) ~~is taking place in every~~ <sup>is taking place in every</sup> process of mensuration, ~~thereby~~ invalidates the deterministic conception of the phenomena assumed in classical physics: the ~~action~~ <sup>series of events</sup> taking place according to pre-determined rules is interrupted, after a free choice <sup>has been made by</sup> ~~of~~ the beholder ~~between~~ between mutually exclusive experimental arrangements, by the selective observation, which, as an essentially non-automatic occurrence, ~~can~~ <sup>may</sup> be compared to a creation in the microcosm or even to a transformation, ~~to be sure with~~ <sup>mutation the results of which are, however,</sup> unpredictable and ~~indeterminable~~ ~~results~~ <sup>beyond human control.</sup> <sup>1</sup>

<sup>1</sup>  
Cf. on this matter the author's essay "Die philosophische Bedeutung der Idee der Komplementarität" in Experientia, Vol. VI/2, p. 72, 1950. The new type of statistic, <sup>al</sup> quantum-physical natural law, which functions as an intermediary between discontinuum and continuum, cannot in principle be reduced to causal-deterministic laws in the sense of classical physics; and just ~~because of the~~ <sup>in limiting</sup> limitation of that which ~~is~~ <sup>happens</sup> according to law to ~~the~~ <sup>that which is</sup> reproducible ~~must recognize~~ <sup>it</sup> the essentially unique in physical occurrences, ~~existing~~ <sup>the existence of</sup>. I should like to propose, following Bohr, the designation "statistic <sup>al</sup> correspondence" for this new form of natural law.

In this way the role of the observer is satisfactorily *accounted for*.  
~~recognized~~ in modern physics. The reaction of the knowledge  
gained on the gainer of that knowledge gives rise, however, to  
a situation transcending natural science, since it is necessary  
for the sake of the completeness of the experience connected  
therewith that it should <sup>*have a binding force*</sup> ~~become binding for~~ <sup>*the researcher*</sup> ~~the gainer~~. We have  
seen how, in addition to alchemy, the heliocentric idea furnishes  
an instructive example of the <sup>*as to how*</sup> ~~problem~~ <sup>*is connected*</sup> ~~real matter~~ of the con-  
nection of the process of knowing with the religious experience  
of trans<sup>*undergone by him who acquires knowledge*</sup> ~~mutation~~ <sup>*on the part of the gainer of knowledge*</sup> ~~on the part of the gainer of knowledge~~. This  
connection can only be comprehended through symbols which <sup>*both*</sup> ~~both~~ <sup>*imaginatively*</sup>  
express the emotional <sup>*aspect*</sup> ~~emotional~~ <sup>*He*</sup> ~~of~~ <sup>*He*</sup> ~~of~~ experience and stand in  
vital relationship to the sum total of contemporary knowledge  
and the actual process of cognition. Just because in our times  
the possibility of such symbolism has become an alien idea it  
may be considered especially interesting to examine another age <sup>*to*</sup>  
~~in~~ which the concepts of what is now called ~~the~~ classical  
scientific mechanics were foreign but which <sup>*permits us to prove*</sup> ~~provides us with proof~~  
~~of~~ the existence of a symbol that had a simultaneously religious  
and scientific function.

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It is <sup>*my*</sup> ~~a~~ pleasant duty to express my warmest thanks to all  
those who have given me assistance and encouragement in the  
writing and publication of this essay.

In particular I owe a debt of gratitude to Professor E.  
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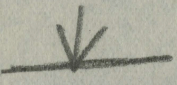
APPENDIX I

Fludd's Rejection of the Proposition that the Soul of Man is a Part of Nature. (Replicatio In Apolog. ad Anal. XII. Franco-

forti, 1622, p. 20f.; cf. Kepler's Apologia, Frankfurt, Vol. V, p. 429)

Fludd: "From these foundations of your Harmonia there arise, it seems to me, multifarious questions and doubts not easy to resolve: namely

- 1) Whether the human soul is a part of nature, <sup>in the soul</sup>
- 2) Whether ~~in the soul~~ the circle with its divisions is reflected by ~~means~~ of the regular polygons [~~with~~ of the circle] because it [the soul] is an image of God,
- 3) Whether ~~out of the division~~ [of the divine mind, mens], which takes place in the essence of the soul, <sup>the</sup> ~~the~~ conceptions of the ~~spiritual~~ <sup>intellectual</sup> harmonies in the divine mind can be evolved; as Johann Kepler would have it (p. 21), whose model here is the human mind which has retained from its <sup>and original</sup> ~~original~~ the impress of the geometrical <sup>data</sup> ~~facts~~ since the very beginning of man.
- 4) Whether the sense of hearing is a part of nature and whether <sup>it</sup> ~~this~~ <sup>can be proved by</sup> the tones and their qualities, <sup>represented & to</sup> ~~which ordinary~~ sense perception represents?
- 5) <sup>Assuming</sup> ~~Granted~~ that the proportion (on the basis of the aforesaid) is reflected in the mind from its origin, whether then the tones <sup>should</sup> ~~should~~ be judged as belonging to harmony and whether pleasure can be derived from them or not?
- 6) Whether <sup>the triangle is a part of the</sup> ~~part~~ of the nature of <sup>intelligible things can</sup> ~~be~~ <sup>represented by</sup> ~~represented~~ a square <sup>and the</sup> ~~else~~ whatever divides the circle <sup>to</sup> ~~in~~ parts, which by their quantity or <sup>length</sup> ~~extent~~ would <sup>determine</sup> ~~be~~ delineations



by means of the regular polygons [with of the circle]

~~out of the division [of the divine mind, mens], which takes place in the essence of the soul, the conceptions of the spiritual [intellectual] harmonies in the divine mind can be evolved;~~

as Johann Kepler would have it (p. 21), whose model here is the human mind which has retained from its original the impress of the geometrical facts since the very beginning of man.

Whether the sense of hearing is a part of nature and whether this can be proved by the tones and their qualities, which ordinary sense perception represents?

Assuming Granted that the proportion (on the basis of the aforesaid) is reflected in the mind from its origin, whether then the tones should be judged as belonging to harmony and whether pleasure can be derived from them or not?

Whether the triangle is a part of the nature of intelligible things can be represented by a square and the else whatever divides the circle to parts, which by their quantity or length would determine delineations

*Handwritten scribbles in the left margin.*

¶ Whence the elements of the intellectual  
beings are established in the Mind  
Divine ↓ in the acts of the procession of  
the simple which takes place in the essence  
of the soul itself.

1, likely: are the termini, ~~the~~ limits, concepts, possibly figures *viz, dots, numbers.*

~~any~~ harmonious proportion, and whether ~~any~~ other natural factor ~~that~~ <sup>is that are</sup> present in artificial song would follow the numerical value of the so constituted harmonies? " *entailed* *all* *harmonies*

"On the main points of these questions, my Johannes, I shall *begin* speak in order, ~~beginning thus~~ (not ~~in order~~ *intending* to contradict you in any point or to do any damage to your Harmonics, but only for the sake of ~~the~~ discussion and as a philosopher stimulated by *(aside from his own opinion* another philosopher, ~~because of his opinion~~ *to solve some questions)*):

Whether the human soul is a part of nature?

This question I must answer in the negative, contrary to what you hope.

*in its capacity of universal soul, contains the formula*

1. Because nature, ~~inasmuch as it~~ *and is not even* has the order of the whole ~~within it in its capacity of universal soul,~~ is also not divisible into ~~actual~~ *essential* parts, as Plato testifies.

2. Hermes Trismegistus says, *that* the soul, or the human ~~spirit~~ *mind* (which he did not hesitate to call the ~~essence~~ *nature* of God), can as little be separated or divided from God *as* a sunbeam from the sun.

3. Plato ~~seems to affirm~~ *as well as* Aristotle that the Creator of all things possessed ~~as~~ *as* soul something whole [total] before any ~~possibility of~~ division. And Plato called this soul universal nature.

4. Plato says that the soul, when ~~it is~~ *(the corporeal* separated from) ~~the~~ laws, ~~of the body~~ is not a number having a definite quantity and cannot be divided into parts or multiplied but is of one form [a continuum].

5. And Jamblich seems to maintain that the soul, though it

seems to have within itself all orders and categories, is nevertheless always determined according to some unity, ~~something~~.

6. Finally, Pythagoras and all the other philosophers who were endowed with some touch of the divine recognized that God is one and indivisible. Wherefore we can argue syllogistically as follows:

- A. That which was <sup>a whole</sup> ~~total~~ before any ~~possibility~~ of division is not a part of something.
- B. <sup>a whole</sup> Now, the soul was ~~total~~ before any division. <sup>2</sup>
- C. Therefore it cannot be a part of nature.

<sup>2</sup>  
I designate the parts of the syllogism by A, B, C. A is what Fludd later calls maior, the major premise, the more general statement; B is minor, the minor premise, the more specific statement; C is the conclusion.

B is proved by the third axiom mentioned above. But if you say in objection to A that the Philosopher <sup>meant</sup> ~~meant~~ the world soul or the universal soul, <sup>however,</sup> ~~whereas you, were thinking of~~ the human soul, I reply with the fourth axiom that the soul separated from the <sup>corporeal</sup> ~~corporeal~~ laws is not a number and not divisible. <sup>Now</sup> that world soul, which in Plato's opinion according to Axiom 3 is nature itself, is separated from the <sup>corporeal</sup> ~~laws of the body~~, consequently the human soul can also not be considered a part of <sup>the former</sup> ~~it~~ since it is indivisible (as is proved by axioms 2, 3, and 4). Or I can deal with you in another way, by taking my argument from your own mouth:

- A. The image of God is not part of anything.
- B. Now, on the basis of what has been granted, the human

soul is the image of God.

*Therefore*  
C. ~~Consequently~~, it is not a part of nature.

A is clear because God is the One and Indivisible according to axiom 6. B is your own assertion as it is cited in the second question and as the ~~statement~~ *speech* of Hermes Trismegistus about the extent of the ~~spirit~~ *mind* declares, according to axiom 2.

~~But~~ Now we shall go on to the second question: whether in the soul the circle with its divisions is reflected by means of the regular polygons because it is the image of God?

is reflected in the soul

I shall not hesitate to answer this question also in the negative, supported by the strongest and most encouraging arguments of the Philosophers. *Namely* ~~That is to say~~, because

1. Plato, *first of all* ~~chiefly~~, says that the soul, separated from the corporeal laws, is not a number having quantity and is neither divisible nor multiplicable. But it is uniform, revolving in itself, *rational* ~~sentient~~, and surpasses all corporeal and material things.

2. Aristotle and Plato say that the Creator *maintained the* ~~maintains~~ soul as *a totality* ~~something total~~ before any division, and Pythagoras makes it *a "one"* in itself ~~as a one~~ and says that it has its unity in the intellect ~~[unity of understanding]~~.

3. Pythagoras, *in his letter to* ~~quoted by~~ Eusebius <sup>1</sup>, acknowledges that God

*Ch. in the "Letter" to*  
is ~~mentioned in a work by the Church Father~~ *as defined*  
*quoted as above, p. - , note.*

*a* unity and indivisible and says that dualism <sup>is</sup> the Devil and evil, because in it lies multiplicity and materiality. And Plato holds that ~~sees~~ all good *exists as* in the One; but evil, he ~~sees~~ *holds, comes from* as the result of chaotic multiplicity.

4. Cicero says that it would not be possible for perfect order to exist in all the parts of the world unless they were united <sup>2</sup> by one single divine and continuous spirit.

<sup>2</sup> continuatae: united, linked together, brought into continuous connection.

5. God can neither be limited [defined] nor divided nor composed (according to Franciscus Georgius).

6. It is maintained <sup>By</sup> the Platonic philosophers ~~that~~ God <sup>is</sup> present [lit., poured into] in all things. <sup>[He is called]</sup> The world soul (which they say ~~is responsible for the~~ <sup>contains the formula</sup> of the whole) ~~fills~~ <sup>in-</sup> ~~invigorates~~ <sup>invigorates</sup> all things. <sup>in so far as it is</sup> universally diffused, <sup>such as</sup> <sup>(He</sup> <sup>infills and</sup>

<sup>according to</sup> 7. God can be determined neither according to <sup>essence</sup> ~~his being~~ nor qualitatively <sup>or</sup> nor <sup>according to</sup> quantitatively, inasmuch as no <sup>predication</sup> ~~statement~~ can comprehend Him. Scotus.

8. The Pythagoreans and the Platonists regard the world soul as being enclosed within the <sup>seven</sup> [planetary] spheres and say that <sup>within</sup> it rests <sup>in</sup> the first sphere in the highest mind; and then, they say, it has become identical with it.

9. As all numbers are in the One, <sup>as</sup> all radii of the circle <sup>are</sup> in the center, <sup>and as</sup> the powers of all the members <sup>are</sup> in the soul, so, it is said, is God in all things and all things in God. Ars Chym. . .

10. Hermes Trismegistus says that God is the center of <sup>any one</sup> ~~every~~ thing <sup>-- a center</sup> ~~you please~~, the periphery of which is nowhere. <sup>1</sup>

<sup>1</sup> This quotation comes from Bonaventura, In Gent. I, d. 37, pars 1. a 1 q. 1; ~~as quoted from the Liber hermeticus de~~ liber hermeticus de

φ

φ (C) 6 C - ...  
2, 1 C, ... = Hermetica Liber

XXIV Philosophorum 510<sup>r</sup>  
D. Mahnke, Unendliche  
Sphäre und Allmittelpunkt, Halle,

1937

ms. lat. sac.

Q

theologiae, ~~Paris~~ Paris, Bibl. Nat. 6319, XIV, p. 6286, fol. 21<sup>r</sup>. - 21<sup>v</sup>. Also quoted by Alanus de Insulis, Regul. 7, 627 A. For more about the history of this statement, which can be traced back to the twelfth century, see Cl. Baumker, Die Philosophie des Alanus de Insulis, Beiträge zur Geschichte der Philosophie des Mittelalters, Münster, 1896, Vol. I, p. 119.

~~the~~ the help of these axioms of the Philosophers I therefore argue thus against your assertions [a statement repeated many times by Fludd.]

Argument I.

A. That which in and of itself is neither a number nor has quantity is <sup>1</sup> not capable of receiving into itself any quantitative

measurable size.

[measurable] figure (such as the circle).

B. Now the soul, which is freed from <sup>corporeal</sup> physical laws is not a number and has no quantity.

C. Therefore the soul does not receive into itself from the very beginning a measurable figure (such as the circle); and consequently a circle is not in the least reflected in it.

A is clear because a non-quantum cannot receive into itself

<sup>2</sup> a non-quantitative magnitude.

any quantities, as the One does not admit of multiplicity, and consequently is not a number.

B is confirmed by the first axiom and similarly by the second

Begin here with page 56 ->

2

but parallel passages found in medieval  
distance from the latter city.  
The source is a pseudo-Petrarch, R. 21,  
XXIV Phloghen? (see now D. Mahke,  
Musikliche Skizzen - Almuthedyn,  
Halle/Saale, 1937).

9 ~~several~~ agony in the city

and third, according to which it is proved that the soul is one. But if you reply that the soul, as you conceive it, is not separated from physical laws since it is the human soul, then I say that you have meant ~~the~~ the essence of the soul, as is apparent from your subsequent words; and ~~the essence of the soul~~ in man <sup>as he exists, this essence</sup> is not different from that <sup>soul</sup> macrocosm of which axiom 1 speaks in the second question, and <sup>according to</sup> axiom 2 of the first <sup>question</sup> where it is shown that the essence of the soul cannot be separated from God.

Or also thus:

A. If the soul is an image of God it is neither a quantity nor a number.

B. Now it is, as you yourself admit, the image of God.

C. Therefore it is not a number nor does it admit of quantity.

A is established because God, according to axiom 7, cannot be determined according to ~~his being~~ <sup>essence nor</sup> or according to quality or quantity, inasmuch as he stands outside of and above any predication.

As far as the confirmation of your ~~opinion~~ <sup>statement (demonstrating</sup> that the soul is the image of God) is concerned, however, <sup>testifies to the fact</sup> this is also proved by axiom 7 which ~~demonstrates~~ that the soul rests at all times in God and becomes one with Him in the highest terminating sphere of its being. And <sup>according to which the mind is not</sup> [it is also proved] by axiom 2 in <sup>the first</sup> question ~~that the spirit cannot be~~ divided from God.

A. If ~~is the~~ the circle with its divisions is reflected <sup>in</sup> from the very beginning (by the regular polygons <sup>is (as you say),</sup>) then the soul is divisible and multiplicable.

B. Now the soul is neither divisible nor multiplicable.

C. Therefore .....

A is ~~is~~ because, if the circle filled it [the soul] <sup>(whence</sup>

*(evident*

*(completely*

the soul

it is also designated as circle by the Platonic philosophers, (though only metaphorically speaking), and if this circle were divisible into parts by the regular polygons, it follows that the soul also would be divided by the divisions of that circle.

B is confirmed by ~~the~~ <sup>axiom 1</sup> ~~axiom~~ furthermore it is shown clearly by ~~the~~ <sup>axiom 2</sup> ~~axiom~~ that the Creator ~~is~~ <sup>maintained</sup> the soul as ~~is~~ <sup>a totality</sup> before any division, wherefore from the ~~beginning~~ <sup>very</sup> beginning the circle was not reflected in it, nor did it admit of the divisions of the circle by the regular polygons. But this ~~is~~ <sup>can be stated</sup> even more ~~clearly~~ <sup>beautifully</sup> in the following argument:

- A. The human soul is (even in your assertion) an image of God.
- B. Now God can neither be divided nor composed.
- C. Therefore neither can the human soul.

Replicatio, p. 34:

".....You maintain, then, that the human soul is a part of nature and that in the soul ~~of~~ <sup>the</sup> circle is reflected with its divisions by ~~the~~ the regular polygons because of the fact that the soul is the image of God. But I say that the soul, at least with respect to its essence ~~is~~, cannot be divided from nature as a part can be divided from the whole, according to that statement of Hermes Trismegistus (Poimandres 12): The ~~spirit~~ <sup>mind</sup> is ~~absolutely~~ <sup>in no wise</sup> ~~not~~ divided from the essence of God. ~~is~~ <sup>it is</sup> Rather bound up with Him as ~~is~~ <sup>is</sup> the light with the body of the sun. For we see that the solar rays are bound up with the body of the sun and cannot by any means really be divided from it, because the essence of light is a unity

and cannot be divided into parts; but naturally with respect to us who abide in multiplicity we say that the soul of ~~the~~ one man differs from that of another in number and kind, although ~~actually~~

*in fact*

<sup>1</sup>  
nihilominus: nevertheless, notwithstanding.

all souls have a continuous relation to the one world soul or the Metathron, as the (sunlight has) to the sun. Consequently,

multiplicity really lies in matter and not in form, which is ~~not~~ *nothing but* ~~other than~~ a continuous emanation from <sup>God, or</sup> the ~~divine~~ Word <sup>of God,</sup> imparting life and being to all creatures. When it is withdrawn [revoked], ~~life~~ life is destroyed, as it says in Psalm 104..."

Replicatio, p. 35:

"I therefore conclude that, as God's essence is indivisible, so also nature itself, which <sup>is His</sup> ~~represents the former's~~ emanation <sup>to</sup> in the world, is in every respect ~~one~~ one single form and indivisible in itself. And <sup>[only] in so far</sup> ~~in so far~~ as God is divisible into three Persons

<sup>3</sup>  
hypostasas

*on the ground that this [division] produces the*  
(~~when one discusses his~~ functions and properties ~~that were~~ <sup>necessary</sup> ~~needed~~ to perfect this world), <sup>[only] in this sense does one</sup> ~~say~~ says that the soul, <sup>too</sup> can be divided into various parts, <sup>where</sup> it is sometimes the <sup>es,</sup> ~~sensuous~~ perceptions, now memory, now imagination, then reason, <sup>intellect, mind</sup> ~~understanding, judgment~~, and so on.

Those, then, who seek to consider the soul as it ~~is~~ <sup>inheres</sup> in ~~the~~ things will observe with their physical eyes that it can <sup>(perishable)</sup>

be distinguished from the body and its ~~characteristics~~ <sup>properties</sup>. But he who, turning back into himself and to his center and neglecting the external world as a deceitful shadow, penetrates into his inner gateways <sup>he</sup> will perceive ~~indeed~~ with his spiritual eyes that there is neither divisibility nor quantity in the soul and that neither numbers nor geometrical figures can be <sup>discovered</sup> ~~found~~ in God (<sup>who</sup> ~~since he~~ is above quantity and quality, <sup>and</sup> ~~the~~ <sup>who has a continuous</sup> essence of ~~the~~ <sup>soul</sup> ~~soul is in continuous connection with him~~ "soul").

.....

"But the world soul is not on this account a circle, neither is there a circle within it; but rather <sup>by its own</sup> ~~is~~ circular motion, ~~as~~ <sup>if it encompasses and contains the universe as</sup> it were through the most all embracing figure, ~~it bounds and~~ <sup>in the most capacious figure, and</sup> ~~holds together the scenes, and~~ also divides it from the darkness of matter. The circle and its imaginary divisions <sup>exists</sup> ~~are to be found~~ therefore, in the created passive spirit and not in the creating soul."

APPENDIX II

Fludd on the Quaternary (Discursus Anal., Analysis to Text XXI, p.31)

<sup>Here</sup> ~~I~~ <sup>dignity</sup> ~~the~~ ~~essence~~ of the quaternary number will be discussed and I shall defend it with might and main as far as my weak intellect allows, spurred on by the <sup>insolence</sup> ~~impertinence~~ of the author [Kepler]. Not only <sup>has</sup> ~~the~~ <sup>Godhead extolled the</sup> Divinity ~~has made the~~ highest superiority of this number ~~renowned~~ <sup>is</sup> above others, for which reason I feel myself moved to regard ~~it~~ and acknowledge it as divine; but also Nature <sup>has</sup> ~~itself~~, the maid of the <sup>Godhead</sup> ~~universe~~, and the ~~most~~ <sup>noble</sup> ~~valuable~~ <sup>mathematical</sup> ~~sources~~, that is to say, Arithmetic, Geometry, <sup>Sciences</sup>

Music, and Astronomy, have demonstrated its wonderful effects. Hence, when we ~~have~~ examined thoroughly ~~the~~ <sup>its praise in theology</sup> ~~of the divinity~~ we shall perceive, first of all, that this quadratic number <sup>is likened</sup> ~~pertains~~ to God the Father in whom the mystery of the whole sacred Trinity is embraced. For the first and simple proportion of the quaternary <sup>that</sup> of one to one, denotes the symbol of the monad, the super-substantial essence of the Father, proceeding from which the second monad engendered <sup>the</sup> a Son like unto Itself, and this second progression is also simple, as 1 from 1. The proportion of two to two, which is the second progression <sup>from</sup> ~~of~~ the simple <sup>numbers,</sup> ~~ones~~ denotes the Holy Ghost, proceeding from two, namely from Father and Son. These progressions in the quaternary are <sup>lucidly</sup> ~~wonderfully~~ expressed by the ineffable name יהוה [Jahweh] : where the double He or ה [h] signifies the progression from Jod the Father and from Vau the Son, wherefore this name alone expresses the essence of God and no other <sup>is known as</sup> Tetragrammaton ~~is~~. And ~~this~~ <sup>Origin</sup> is the reason why this number is called by the wise the ~~Fountain-head~~ <sup>Origin</sup> and Source of the whole ~~Divinity~~ <sup>Godhead</sup>. Nature <sup>lay</sup> ~~itself~~, ~~deriving her~~ <sup>as to her</sup> origin from the ~~Divinity~~ <sup>Godhead, also lays claim to</sup>, ~~claims~~ this number ~~as its~~ <sup>as to her</sup> fundamental principle. And ~~this~~ <sup>which</sup> is the same thing ~~that~~ the Pythagoreans proclaimed who called this number the eternal fountain-head of nature, as appears from the following verses which the Pythagoreans were accustomed to ~~repeat~~ <sup>pronounce</sup> when taking an oath:

Pure in heart I swear to thee  
 by the holy Four,  
 the fountain-head of eternal Nature,  
 the <sup>procreator</sup> ~~nourisher~~ of the soul.

And <sup>while</sup> ~~since~~ I am ~~already~~ discussing this subject I shall say the following: the Pythagoreans did not ~~explain~~ <sup>consider</sup> duality as a

number but as a ~~confusion~~ <sup>bleeding</sup> of ~~the~~ units. Consequently they declared its square to be the first even number and this not without ~~any~~ reason: for since <sup>the first</sup> unity signifies <sup>the divine</sup> form or <sup>actus</sup> ~~the~~ ~~act~~, the <sup>second</sup> ~~unity~~ ~~however~~, <sup>the divine potentia</sup> ~~matter~~ or <sup>matter</sup> ~~the divine potentia~~, it ~~must~~ ~~follows~~ that ~~the~~ ~~potentia~~ ~~emerges~~ from the darkness by virtue of <sup>actus</sup> ~~the~~. Of these units, however, the first was created through the <sup>binding action</sup> ~~generation~~ of the threefold Unity, <sup>from the</sup> ~~the~~ ~~universal~~ ~~world~~ ~~substance~~, according to the nature of the holy Trinity. But because ~~the~~ ~~first~~ ~~square~~ ~~was~~ ~~based~~ ~~upon~~ ~~the~~ ~~number~~ ~~two~~ ~~the~~ ~~binary~~ ~~number~~, the progression of nature <sup>proceeded</sup> ~~to~~ ~~that~~ ~~number~~ ~~four~~ ~~quaternary~~ ~~number~~ ~~contains~~ ~~in~~ ~~itself~~ ~~the~~ ~~square~~ ~~of~~ ~~the~~ ~~world~~ ~~in~~ ~~this~~ ~~way~~ the ~~quaternary~~ ~~worldly~~ ~~substance~~ was divided into four elements distinct from each other. From this number [four] there is <sup>in the order of things</sup> a progression equal to the first, <sup>namely,</sup> to the first cube ~~is~~ ~~the~~ ~~number~~ ~~eight~~ or the doubled quaternary; <sup>this denotes the compositions</sup> ~~revealing~~ ~~itself~~ ~~in~~ ~~its~~ ~~compoundings~~ of ~~the~~ ~~elements~~, <sup>just</sup> as the elements themselves, like the square, had proceeded from the number two which denotes simple matter and simple form distinct from each other. From this, then, there <sup>originated</sup> ~~issued~~ the four degrees of nature which are related to the four elements, namely, being, life, <sup>Sensory</sup> ~~feeling~~ ~~consciousness~~ ~~perception~~, ~~sentience~~, and <sup>intelligence</sup> ~~understanding~~, the four cardinal points of the universe, the four primary qualities beneath the firmament, the four <sup>triads</sup> ~~triplicities~~ in the firmament, and the four seasons. Indeed all nature <sup>is comprised in</sup> ~~can be expressed in~~ four concepts, namely, substance, quality, quantity, and motion. Finally, a quadruple order <sup>constantly provides</sup> ~~constantly provides~~ ~~the~~ ~~whole~~ ~~world~~, that is, seminal force, natural increase, <sup>maturing</sup> ~~developing~~ ~~form~~, and <sup>the</sup> ~~composition~~. ~~But also in~~ ~~infinitely~~ ~~many~~ ~~other~~ ~~respects~~ ~~this~~ ~~quaternary~~ ~~character~~ ~~of~~ ~~nature~~

general (now specified)

whose proportion to the <sup>number two</sup> ~~is~~ ~~is~~ 2:1, and which is also

~~By this we can clearly demonstrate~~  
~~can be recognized, with reference to which I could of course~~

~~prove that the~~ <sup>This number, should</sup> four, ~~ought~~ rather ~~to~~ be chosen to distinguish  
and divide the humid [primal] matter than the three or the five.

Arithmetic also demonstrates the <sup>superiority</sup> ~~importance~~ of this number ~~above~~ all  
others, ~~because~~ <sup>For, this science well explains, not only</sup> its double proportion is best

~~explained, (the first, of which being that of 1 to 2, the~~  
that of 2 to 4, ~~is~~ <sup>but do the</sup> ~~its~~ origin, is produced <sup>of this proportion, in that it</sup> by ~~double~~

progression and proportion ~~and from which it arises, i.e., from~~  
one to <sup>one</sup> and from <sup>two</sup> to <sup>two</sup>. ~~2~~ <sup>The number four thus</sup> begins ~~therefore~~ with the

unity and ends in the quaternity. And indeed in this number all  
other numbers are contained, for one <sup>plus</sup> one make <sup>two</sup>, and from one /  
plus <sup>two</sup> comes <sup>three</sup>, and from the ~~three~~ <sup>three</sup> together with the unity  
to 4. Thus, then, are established 1, 2, 3, and 4, in which all the

mysteries of the whole world and Nature itself and the dimensions  
of Arithmetic are contained; for, ~~for~~ <sup>by</sup> the 3 and 4 is produced the  
number seven, which formaliter [symbolically] considered is

completely mystical and full of secrets. From the addition of  
2 and 3 there results the number 5, from 1 <sup>plus</sup> 2 <sup>plus</sup> 3 the  
number 6, from 1 <sup>plus</sup> 3 <sup>plus</sup> 4 the number 8, from 2 <sup>plus</sup> 3 <sup>plus</sup> 4  
the number 9; and, finally, from the ~~summation~~ <sup>summation</sup> of the entire

natural progression 1 <sup>plus</sup> 2 <sup>plus</sup> 3 <sup>plus</sup> 4 there arises the  
number 10, beyond the designation of which there can be no more  
progress. From these progressions <sup>plus</sup> there arise ~~all~~ all proportions  
of geometry and music, as 1, 2, 4, 6, 8, 10 and 1, 3, 6, 9, and 1, 4, 8.

And ~~to~~ <sup>from</sup> him who understands properly the use of this natural pro-  
gression 1, 2, 3, 4 in formal [symbolical] speculation there will  
~~also~~ <sup>be</sup> not remain hidden the mystery of the Seven Days of Creation,  
and why the sun was created on the fourth day, and how three ~~to~~ <sup>plus</sup>  
four constitute either the seven or the ten, ~~or the quaternary four~~

Second,  
a fourfold  
essence,

The Sabbath is the day of rest,

[The number seven] stands for

among the rational numbers, and why the quaternary ~~of the day~~ of  
~~the Sabbath~~ <sup>the number four is the day of the sun</sup> ~~and why it is Sunday~~, likewise, how in  
~~the true natural operation~~ <sup>the number</sup> three denotes and ~~yields~~ <sup>establishes</sup> the number  
 six and <sup>ways</sup> six days are important in <sup>the work of</sup> creation, and He will also be  
 able to work out the <sup>formulae</sup> calculation of the Critical Days and <sup>The Climacteric</sup> years  
 and of the climacterics and will even, When he considers the  
 four as a unity, <sup>he will</sup> see, (as it were), with ~~closed~~ <sup>opened</sup> eyes the  
 creation of the seven planets in the world and many other wonders.  
 In Geometry ~~its~~ <sup>comprises</sup> its power [i.e., of the Quaternary] is in-  
 finite inasmuch as it ~~sums up~~ <sup>comprises</sup> this part of mathematics in four  
 concepts, namely, point, line, surface, and body.."

(p. 32) "From it [the four] we also see that geometrical

aboriginal Cube emerge, from the innermost part of which our ~~author~~ <sup>author [Kepler]</sup>

produced all the rest, just as the four elements from the womb of  
 chaos; for the cube results from a ~~fourfold~~ <sup>of the square,</sup> multiplication this  
 cube which ~~he~~ <sup>acknowledges as</sup> himself ~~recognized as~~ primordial and containing the  
~~formula~~ <sup>formula</sup> ~~order~~ of everything. Since this is so I was obliged to choose  
 in my divisions the quaternary, into which the cube can be ~~divided~~ <sup>resolved</sup>  
 as into its ~~primary~~ <sup>primary</sup> elements, namely squares, from which ~~are obtained~~  
 the triangle and the pentagon according to his own admission <sup>are</sup>

[obtained]. Consequently, a natural thing, ~~which composed is~~  
 related to the cube, ~~ought rather to be divided into its quarters~~ <sup>shall</sup> ~~rather~~ <sup>rather</sup> into ~~its~~ quarters <sup>rather</sup> ~~rather~~  
 than into three thirds or five fifths, ~~since indeed~~ <sup>For, in the act of</sup>

~~in corruption~~ <sup>decomposition</sup> there takes place the dissolution of ~~what has been~~  
~~composed, as of the cube into four elements,~~ <sup>composite, 2/3.</sup> ~~or into the square;~~ <sup>that is to say,</sup>  
 just as, conversely, in <sup>the act of</sup> generation there is a natural progression  
 from the square to the cube. Finally, the power of this number

As it is

and they are not ~~indeed~~ <sup>at all</sup> received within by ~~the power of logical~~ <sup>discursive reasoning;</sup> thought, ~~but~~ <sup>are derived from</sup> rather ~~as~~ they ~~depend on~~ a natural instinct and are inborn in these beings, as <sup>in the formation of plants</sup> ~~in the forms of plants~~, the number (an intellectual thing) of the petals is inborn in the flower, or the number of the seed cells in the apple."  
 (Latin: "Nam aquaticum est...")

We shall return later to Kepler's special views on the morphology of plants. The concept of "instinctus", which occurred here, is always used by him in the sense of the faculty of perception, ~~in~~ <sup>which he thinks</sup> regard to ~~which~~ he is thinking of quantitatively determined geometrical forms. Geometry is in fact (to him) a value of the highest rank.

"The traces of geometry are expressed in the world <sup>as though</sup> ~~as though~~ geometry <sup>is a form</sup> ~~is~~ <sup>is, so to speak, the</sup> ~~was, one might say,~~ the archetype of the <sup>world</sup> ~~cosmos~~." <sup>1</sup> "The geometrical

<sup>1</sup> De stella nova Serpentarii, Cap. IX (Frisch, Vol. II, p. 642f.)

"....geometriae vestigia in mundo expressa, sic ut geometria sit quidam quasi mundi archetypus."

<sup>1</sup> ~~figures are eternal, the geometrical principles true from all eternity~~ <sup>These are</sup> ~~in the mind of God... Ergo quanta sunt mundi archetypus.~~ <sup>are natural entities.</sup> <sup>2</sup> "The human

<sup>2</sup> Letter of Kepler to Hegulontius (Frisch, Vol. I, p. 372).

"Nobis constat, creatum mundum et quantum factum; geometricae figurae (h.e. quantitativae) sunt entia rationis. Ratio aeterna. Ergo figurae geometricae sunt aeternae, nempe ab aeterno verum erat in mente Dei, lateris tetragonici quadratum, e. gr. esse dimidium de quadrato diametri. Ergo quanta sunt mundi archetypus."

mind is an image of the mind of God and retains from its archetype

for all eternity

I suppose, the geometrical figures are intended, and it is  
in the mind of God it ~~was~~ <sup>has been</sup> ~~eternally~~ true, that, for  
example, the square of the side of a ~~rectangle~~ square  
equals half the square of its diagonal.

is revealed ~~most~~ <sup>as</sup> clearly <sup>as possible</sup> in the science of music, inasmuch as it comprehends in itself the entire musical harmony. For in the double ~~[proportion]~~ <sup>[proportion]</sup>, as 1 to 2, lies the octave; in the 'sesquialtera', i.e., 2 to 3, the fifth; and in the 'sesquitertia', i.e., 3 to 4, the fourth. Furthermore, from the number four and its root there result all the proportions of the composed consonances [chords], ~~the~~ the octave, for example, stands in relation to the fifth in the triple [proportion], i.e., as 2, 4, 6. For, between 2 and 6 a ~~threefold~~ <sup>triple</sup> proportion is ~~assembled~~ <sup>assembled</sup>, from the double, namely 2 plus 4, and the 'sesquialtera', i.e., 4 to 6. ~~the~~ The double octave is found in the fourfold [proportion], as 2, 4, 8; the fourth, however, plus the fifth make one octave, as 2, 3, 4. From this it can be seen that all musical proportions receive their ~~characteristics~~ <sup>properties</sup> from the quaternary and its root and either resolve themselves into its ~~dimensions~~ <sup>measures</sup> or arise from them. And, finally, if we consider mystic Astronomy we shall indeed perceive in it the whole power of the quaternary, and ~~as a matter of fact~~ <sup>this</sup> most clearly; for its whole secret lies in the hieroglyphic monad which ~~bears before~~ <sup>exhibits</sup> it the symbols of sun, moon, the elements, and fire, which ~~work~~ <sup>act</sup> actively and passively in the ~~cosmos~~ <sup>universe</sup> in order to produce the ~~changes in it, the destructions, and the creations that take place in it.~~ <sup>perpetual / orderly corruption and generation</sup> ~~therein~~ <sup>therein</sup> The figure is as follows:

Fig. 2

- moon
- sun
- elements
- fire

In this symbolical <sup>image</sup> ~~representation~~ we see, first of all, in the ~~cross~~ of the quaternary (an indication) <sup>in the form, by which</sup> of the four elements of four lines <sup>being arranged so as to</sup> meet in a common point, ~~which~~ <sup>joined</sup> with the number three, <sup>which</sup> denotes the moon, the sun, and fire <sup>this [quaternary]</sup> will produce the number seven, which can also be <sup>demonstrated by</sup> ~~done~~ from the four elements. And yet this number seven is in itself none other than the quaternary (formally considered).

Furthermore, <sup>even</sup> the practitioners of ordinary astronomy have ~~also~~ esteemed this matter as of great moment; <sup>in establishing</sup> ~~the~~ Zodiac <sup>they divided</sup> into four <sup>triads</sup> ~~triplicities~~. We conclude, therefore: that the wise men called this number 'Tetraktys' and gave it precedence above all other numbers because <sup>as has been said,</sup> it is the foundation and root of all other numbers, ~~as has been said,~~ <sup>Hence all fundamentals,</sup> both in artificial and natural things, and even in <sup>The realm</sup> ~~divine~~ things as well, are squares, as has been explained above. It follows therefore that the division of a natural thing <sup>by the number four, which</sup> ~~into four is better,~~ because <sup>it is</sup> the order of nature itself, than a division <sup>into the</sup> ~~into~~ three or five which are by nature derived from the root of the quaternary and consequently ~~to~~ subordinated to it. Finally, in <sup>dividing</sup> ~~the~~ division of the earth into four parts, of the water into three, of the air into two, and of the fire into one, one should not understand this distribution as the author [Kepler] does, as has been expounded above, but with respect to the formal proportion in those elements. For I endeavor to show that the nature of the earth, since it is the basis and, as it were, <sup>the</sup> source and ~~the~~ cube of matter, has little or nothing of form or ~~of~~ vivifying light in itself; <sup>so to speak, the</sup> it is ~~the~~ the ~~quasi~~ vessel or matrix of nature and the receptacle of the celestial influences, so that

the light that it has belongs to it more by accident than by nature, inasmuch as it <sup>[the earth]</sup> is very far removed from the source of light and is the coldest of all elements, and this <sup>in</sup> the fourth degree; ~~also~~ water is <sup>also</sup> cold but to a lesser degree. For ~~this~~ <sup>to</sup> this reason it [the earth] admits of only one degree of light in itself and so also in the case of the others. The wise ought therefore to understand rightly before condemning rashly."

APPENDIX III

The Platonic and Hermetic Trends. Scotus Eriugena

The controversy between Kepler and Fludd is connected, from the point of view of the history of ideas, with the existence in the Middle Ages of two different philosophical trends which I may designate briefly as the Platonic and the alchemistic (or hermetic). <sup>tr!</sup> There are, on the one hand, important points of agreement Between the two trends and even intermediary <sup>or</sup> transitional stages; but, on the other hand, there existed fundamental differences that seem to me to be more than mere shades of opinion. <sup>For the Platonist,</sup> The life of the <sup>Divinity which he conceives in a</sup> more or less pantheistic ~~ly~~ <sup>spirit,</sup> ~~conceived divinity~~ that is to say <sup>as</sup> ~~divinity~~ <sup>totality</sup> identical with the ~~entirety~~ <sup>of the</sup> ~~world,~~ <sup>world</sup> consists ~~for the Platonist~~ <sup>which</sup> of a cosmic cycle <sup>beginning</sup> with the emanation from the Godhead first of the "ideas" and "souls", then of the corporeal world, and ends <sup>with</sup> with the return of all things to God. The idea of the opus and its result, and thus the idea of <sup>unity</sup> ~~a~~ trans<sup>formation</sup>, is foreign to the Platonist. The final stage of the cycle is identical with the initial stage, <sup>1</sup> and this ~~section~~ <sup>process</sup>

1

Scotus Eriugena: "Finis enim totius motus est principium sui; non enim alio fine terminatur nisi suo principio a quo incipit moveri."

continues for ever and ever. ~~But~~ <sup>then,</sup> what is ~~now~~ the meaning of this eternal cycle if it does not ~~lead~~ lead to any result? To this question the Platonist gives the answer: beauty. The prime cause of the cycle is ~~is~~ unchangeable and unmovable, ~~things~~ <sup>drawing</sup> things <sup>back into itself</sup> solely by virtue of its beauty <sup>2</sup>. The cycle ~~follows~~ <sup>purposes</sup> a

2

Scotus Eriugena: "Ita rerum omnium causa omnia, quae ex se sunt, ad se ipsum reducit, sine ullo sui motu, sed sola suae pulchritudinis virtute."

self-sufficient beauty) guaranteed by rules of <sup>the same" which are</sup> ~~actions that have~~ <sup>and it</sup> been determined once and for all, needs no result. The soul of the individual can ~~effect~~ <sup>do</sup> nothing but to fit itself into this cosmic cycle in order to become ~~thereby~~ a participant in the beauty of the ~~cosmos~~. <sup>3</sup>

This is the purpose of contemplation which always

3

In the Renaissance Platonism of Leone Ebreo and Marsilio Ficino the cycle appears specifically as the "circulus amorusus".

According to these authors the bliss of love lies in the fact that the lovers ~~establish contact with this~~ <sup>insert themselves into the</sup> cyclical current ~~of~~ <sup>permeating</sup> the cosmos. The conception of love is broad enough to include both the desire for knowledge as "amor intellectualis dei" and the ecstatic states of the religious prophets as "amor coelestis."

For the alchemistic parallels to this "circulus amarus," cf. the series of pictures in C.G. Jung's Psychologie der Übertragung, also in his Psychologie und Alchemie, Ill. 131, p. 350, which corresponds to the beginning of this circle (in the English trans., Psychology and Alchemy, ).

begins with "melancholia", with the homesickness of the soul for its divine origin. (The parallel to the "melancholia" of the Platonists is the alchemists' "nigredo".)

Despite all my respect for the philosophy of the Platonists it seems to me that the attitude of the alchemists with their filius philosophorum as <sup>a</sup> ~~the~~ symbol of ~~the~~ transformed totality is closer to modern feeling. In particular, the Platonic idea of a primal cause that ~~has~~ <sup>produces</sup> effect, but cannot ~~itself~~ be affected ~~in turn~~ is not acceptable to the modern scientist who is accustomed to the relativity of reciprocal effects. I believe also that this idea <sup>can hardly stand the test of psychological analysis.</sup> ~~of a psychological criticism can hardly be defended~~, since it seems to be determined by the particular, by no means generally valid psychology of its authors, a psychology that showed a tendency to deny the reciprocal <sup>ity between</sup> ~~effect~~ of the ~~ego~~ consciousness <sup>of the ego</sup> and the unconscious, ~~on each other~~.

The Platonists, as we have seen in Kepler's case also, favored in general a trinitarian attitude in which the soul occupies a <sup>intermediate</sup> ~~middle~~ position between <sup>mind</sup> ~~spirit~~ and body. It may be of considerable interest to know, however, that in the earliest Platonic thinker of the Middle Ages, in Scotus Eriugena, the idea of quaternity can also be found. In his work, De divisione naturae, he introduces two pairs of opposites: ~~the ego~~ <sup>an active</sup> creans (that which creates)

(a pair of active principles, viz., the

as opposed to the  
n.g. the

and a pair of  
the ~~other~~ passive principles

~~and~~ non creans (that which does not create); ~~the other~~ passive principles, creatum (that which is created) and non creatum (that which is not created).

By the aid of this terminology, which is very attractive to the mathematically minded, Scotus arrives at his four natures, ~~this~~ <sup>a</sup> conception ~~is intended to be made clear~~ <sup>that may be illustrated</sup> by the following schematic figure, which also reveals ~~the~~ <sup>the</sup> connection <sup>of Eriugena's system</sup> with the

Platonic cycle of emanation and reabsorption. In identifying ~~the~~ <sup>the</sup> Stages 1 to 3 of the cycle with the three Divine Persons ~~were~~ ~~Scotus Eriugena~~ <sup>attempted to compare with</sup> the dogma of the Church.

In the case of the fourth stage, <sup>however,</sup> that of the natura nec creata nec creans, he seems ~~however~~ to have found himself in a ~~very~~ embarrassing position. As a Platonist he could not do as the Hermetic Philosophers did and allow a transformation of the whole to appear simultaneously with this fourth stage.

Since he wanted to return to the point of departure ~~and~~ <sup>where</sup> ~~there~~ no fourth Divine Person <sup>was</sup> at his disposal, he could think of nothing better than to act as though the natura nec creata nec creans were the same thing as the natura creans nec creata at the beginning,

for which <sup>argument</sup> ~~argument~~ there is obviously no satisfactory reason given (a point to which Professor M. Fierz <sup>who</sup> called my attention). <sup>to this point</sup> To the question of <sup>what has happened to</sup> ~~where~~ the fourth Person ~~can be found~~, therefore, the answer must be in the particular case of Scotus Eriugena:

"~~in~~ <sup>He has disappeared in an</sup> identification with the first."

Fig. 3

- 1. Natura creans nec creata.  
Origo: God the Father
- 2. Natura creans creata.  
"Ideas": God the Son

4. Natura nec creata nec creans.

Goal: theosis (deificatio)

3. Natura creata nec creans.

"World", products of emanation; the corporeal world, matter, theophaniai, the Holy Ghost. "God has created Himself in the world."

Scotus Eriugena

(ca. 850) De divisione naturae, ~~Quaternitas~~ Quaternity,

*as conceived by  
this author*