

PROCLUS ON THE ELEMENTS AND THE CELESTIAL BODIES :
PHYSICAL THUGHT IN LATE NEOPLATONISM

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A Thesis submitted for the Degree of Doctor of Philosophy
to the Dept. of History and Philosophy of Science, Science Faculty,
University College London.

December 1986

ABSTRACT

Until recently, the period of Late Antiquity had been largely regarded as a sterile age of irrationality and of decline in science. This pioneering work, supported by first-hand study of primary sources, argues that this opinion is profoundly mistaken. It focuses in particular on Proclus, the head of the Platonic School at Athens in the 5th c. AD, and the chief spokesman for the ideas of the dominant school of thought of that time, Neoplatonism.

Part I, divided into two Sections, is an introductory guide to Proclus' philosophical and cosmological system, its general principles and its graded ordering of the states of existence. Part II concentrates on his physical theories on the Elements and the celestial bodies, in Sections A and B respectively, with chapters (or sub-sections) on topics including the structure, properties and motion of the Elements; light; space and matter; the composition and motion of the celestial bodies; and the order of planets.

The picture that emerges from the study is that much of the Aristotelian physics, so prevalent in Classical Antiquity, was rejected. The concepts which were developed instead included the geometrization of matter, the four-Element composition of the universe, that of self-generated, free motion in space for the heavenly bodies, and that of immanent force or power. Furthermore, the desire to provide for a systematic unity in explanation, in science and philosophy, capable of comprehending the diversity of entities and phenomena, yielded the Neoplatonic notion that things are essentially modes or states of existence, which can be arranged in terms of a causal gradation and described accordingly. Proclus, above anyone else, applied it as a scientific method systematically.

Consequently, that Proclus' physical thought is embedded in his Neoplatonic philosophy is not viewed as something regrettable, but as proof of his consistent adherence to the belief, that there must be unity in explanation, just as there is one in the universe, since only the existence of such unity renders the cosmos rational and makes certainty in science attainable.

TABLE OF CONTENTS

Dedication and Acknowledgments	5
Preface	7
List of Primary Sources	12
Biographical and Historical Note	18
Part I. A guide to Proclus' system.	25
Section A. The general principles.	
Introduction	26
1. The triadic motif	28
2. "All things are in everything, but appropriately"	44
3. Similarity and Sympathy	48
Section B. The modes of existence.	
Introduction	52
1.1. The One	56
1.2. Limit and the Unlimited	61
1.3. The henads	67
2. Being, Substance	73
3. Life, Power	79
4. Intellect	85
5.1. Soul's general properties, and the Hypercosmic Soul	94
5.2. The World Soul	100
6. Nature	105
7. Space and Time	112
8.1. The celestial bodies	119
8.2. Celestial attendants and sublunary inhabitants	121
8.3. Cause and effect in the material world	125
8.4. The four Elements	128
8.5. Body, Matter, and the inverse hierarchy	129

(Table of contents cont.)

(Table of contents cont. from p.3).

Part II. The physics of the Elements and the Celestial bodies. 140

Section A. The Elements of the Universe.

Introduction	141
1. The Platonic background	142
2. The 15 Arguments	149
3. The properties of the Proclan Elements	163
4.1. The cosmological modes. General	178
4.2. Aether's status	190
4.3. Light	195
4.4. The Vehicle	201
5. The motion theory of the Elements	206
6. Space, Body and Matter	211

Section B. The celestial bodies.

Introduction	218
1. The status of the celestial bodies	219
2. The celestial	225
3. The celestial body	234
4. Stars and spheres	243
5. The satellites	250
6.1. Celestial motion. General	255
6.2. The fixed stars, and the precession	261
6.3. The planets	270
7. The planetary order	282
8. Earth and the celestials	290

Review and Conclusion 294

List of quoted passages 302

Bibliography 309

to 321

Dedicated most gratefully to
George and Smaragda Siorvanes, Lisa Siorvanes,
and Demetrios Soteropoulos,
for all their unqualified support both moral and financial

Acknowledgments

I should like to thank my supervisors, Prof. Piyo Rattansi of the Dept. of History and Philosophy of Science, and Dr. Robert Sharples of the Dept. of Classics, for the breadth and penetration of their comments, as well as their boundless patience and kindness.

During the course, I was privileged to attend a number of seminars at the Institute of Classical Studies and Kings College London organized by Prof. Richard Sorabji, to whom I owe a special thanks for having made me sensitive to the subtleties and sophistication of ancient thought through the rigors of analytical philosophy.

I also benefited from the immense knowledge of Neoplatonism (especially the later form) of Prof. Anthony C. Lloyd and Dr. Henry Blumenthal. In addition, I should like to express my gratitude to the late Dr. Charles Schmitt of Warburg Institute. I thank, also, Dr. Larry Schrenko of Washington University for his observations on the theory of place, and David Blow, a fellow Ph.D. student at the Dept. of History and Phil. of Science, for having brought to my attention a recent article on Proclus' life.

An advantage of studying at the University College London is that one is placed conveniently within a short distance of among the best libraries in the world; I therefore thank the Librarians and staff of the following: University College London, Institute of Classical Studies, Warburg Institute, Senate House (University of London), British Library, Dept. of Greek and Roman Antiquities, British Museum, and Theosophical Society, London.

Finally, I have pleasure in thanking Carolyn Moody for all her invaluable help.

PREFACE

This study explores the physical thought in late Neoplatonism, and focuses in particular on Proclus, the head of the Platonic School at Athens from about AD 437 until his death in 485.

It offers a reconstruction and an examination of his views on the perennial subjects of ancient science and philosophy, the elements and the celestial bodies, within their philosophical environment.

Two factors have influenced the choice of the subject-matter: the historical importance of the period, and the disproportionately scant scholarship devoted to it. Neoplatonism, the main intellectual movement of Late Antiquity, represents not only the final expression of ancient thought, but also the mode in which it was transmitted to the Islamic and to the Western European civilization, where it remained influential as an intellectual force even after Newton. Yet the amount of studies available is pityfully small by comparison to the earlier "Classical" period of Aristotle, Ptolemy and Galen, and the later periods of the Middle Ages and the Renaissance.

Much of the lack of interest may be traced to the persistent preconceptions about the so-called decline and fall of classical thought, the spread of superstition, and the rigidity and forbidding complexity of the philosophical systems of that time. Such opinions, which have become commonplace, became prevalent around the turn of the century, when the very term "Neo-Platonism" was coined in an effort to distinguish it from the original, "pure" form of Platonism. Although their echoes still survive, more recent and more penetrating scholarship has begun to acquaint us with both the dynamic changes of the period and its intellectual life. In the context of the history of science, S. Sambursky's unequalled work, "The Physical World of Late Antiquity", has afforded us glimpses of the lively debate over those pillars

of ancient science, Aristotelian physics (whose premises were critically examined and largely rejected) and Ptolemaic astronomy (whose cosmological value was questioned), and the innovative thinking on the role of mathematics in physics, and on the concept of space. But, even he admonishes Neoplatonic philosophy (p.xii) for having a "retarding and confusing influence on scientific thinking", because, inter alia, it adhered to "the irrational belief in the ultimate unity of the cosmos" (sic). Plainly, there is more to Neoplatonism.

The combination of the exiguous amount of available or indeed known literature on the subject, and the limitations inherent in a thesis, led me to concentrate on the ideas of one individual thinker, rather than embark on a general assessment of many.

Fortunately, Proclus provides a good balance, since he systematized comprehensively all the Neoplatonic versions before him and dominated the ones after him. Furthermore, it was under him, that Neoplatonism reached its peak of influence. Thus, he can be rightly considered the spokesman of Neoplatonism in general, and his concepts may be treated as representative of Neoplatonism as a whole.

Although Plotinus was in a sense the originator of this form of Platonism, he stands, in many ways, much like the so-called "unparticipated cause" in Proclus' philosophy, outside mainstream Neoplatonism as it developed soon after his death. Trends of thought which were already present in Porphyry (Plotinus' student and compiler of his doctrines) were expanded and added to by Iamblichus. In the Athenian School and with Proclus they developed into the famous Neoplatonism which proved to be influential in Late Antiquity and beyond. This form of Neoplatonism (4th-6th c.), which effectively became the Neoplatonism, is usually called "late" Neoplatonism to distinguish it from the earlier forms, especially Plotinus'.

The concentration on Proclus is more than justified, moreover, by the sheer number of his writings, the majority of which (L.J.Rosán's estimate is 3/5 th.) are extant. Titles cover the span of human interest of the time, from philosophy on the structure of existence, the nature of divinity, fate, free-will, ethics, astrology, theurgy, and poetry, to mathematics, astronomy and physics. In addition, they include some of the most voluminous works of all time. A conservative estimate of his extant corpus would yield 1,700,000 words of text, which makes him one of the most prolific writers in all antiquity (Galen notwithstanding).

Since the subject-matter belongs to a rather distant era, but whose terminology has somewhat familiarly uncomfortable overtones, a note of explanation and caution is necessary. This, as I hope it will become obvious, has a crucial bearing on the way Neoplatonism and its scientific contribution are evaluated.

Although there are recognizable similarities between the subjects of ancient and modern science, eg. cosmology, the elements, matter, the heavenly bodies, motion, their framework of thought was different, and in many parts it appears distinctly alien. In the case of (late) Neoplatonism especially, these differences may be grouped under the headings, (i) science or physical thought as part of philosophy, (ii) the inclusion of religious entities in such a philosophy.

(i) How and why modern science has come to differ from the ancient constitutes, of course, the subject-matter of the history of science. Suffice to note here, that much of what is now called "science" as opposed to philosophy, was thought to be philosophical as late as the 18th c. The emergence of science in its present, distinct form may be traced to the debate on the role of God in the world, and the withdrawal of philosophical interest even from cosmology.

(ii) Perhaps the more incongruent element in Neoplatonic philosophical physical thinking is the presence of and references to entities which would otherwise belong exclusively to religion. If it is difficult enough to appreciate the scientific relevance of "form" and "sympathy", it is even more difficult to appreciate the relevance of "soul" and "divinity". To make matters worse still, most of these references belong to the universe of the mystery religions, astrology and theurgy, a universe which was largely not only pre-Christian, but, in the period under consideration, anti-Christian to boot. Understandably it is this aspect of Neoplatonism which has given it a more infamous reputation, and the concomitant indifference, if not outright rejection. A rather abrupt response to any possible questioning of the value of Neoplatonic thought on this basis alone may run along the line, that one man's religion is another's superstition, and, let the one who is blameless cast the first stone. But, of course, a more elaborate answer has to be found in history, or at least the history of religion. The separation of religion from philosophy may thus be traced to the rise of theocratic cultures (Christian and Islamic) by the 8th-9th c., and the subsequent tensions between religious orthodoxy and philosophy. Ancient philosophical thought about divine nature was embedded in a more secular ground, and was intrinsically connected to the network of concepts about order, symmetry, perfection and truth, not to the world of arbitrary, supernatural deities, who require obedience.

The path of the Neoplatonic philosopher, like Proclus, to religion was still that of the philosopher, through contemplation about the "real" things in an ordered universe. Theurgy seems to have been the more emotional, ritualistic aspect, as well as the means for an active relationship with divinity.

For the Neoplatonist, science was part of his overall philosophy, and this philosophy encompassed the metaphysical, religious entities in a grand cosmology of all that exists, both visible and invisible.

The thesis is divided into two Parts. Part I is a self-contained guide to Proclus' philosophical and cosmological system. It also provides a readily accessible reference to the various technical terms and concepts which appear in Part II, the main exposition of his work on the Elements and the celestial bodies. The inclusion of a rather substantial orientation to Proclus' system (viz. Part I) was deemed necessary, partly because of the intimate connection between his science and philosophy, and partly because of the lack of any easily obtainable, comprehensive account of it. Besides, even among some of the more well-known literature on or with references to Proclus' scheme there seem to be misunderstandings of his philosophy at quite a fundamental level.

Part I is subdivided into two Sections. The first contains the general principles which permeate all of his philosophy, and which are present in most of his works. The second follows the full expansion of his universe, and the hierarchical arranging of the modes of existence. It is complete inasmuch as it presents all the chief entities of his system, as derived from primary textual sources.

Part II is also subdivided into two Sections. Section A focuses on his theory on the Elements, their structure and properties. There are also chapters on their contribution to the concepts about light, space, aether and the soul-vehicle. Section B examines Proclus' views on the celestial bodies. Some aspects of his Element theory reappear within the context of the discussion on the substance of the heavenly bodies, but most of this Section is inevitably devoted to celestial motion and its particular problems. The role of the earth in relation to the celestial bodies is also discussed.

Part II relies more heavily on primary sources, since the existing secondary literature on Proclus' conception of the Elements and the heavenly bodies is distinctly more conspicuous by its paucity. As a result, most of the material detail on Proclus' physical theories appears to my knowledge here for the first time.

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BIOGRAPHICAL AND HISTORICAL NOTE

Proclus lived from about AD 411 until 485, ie. he died fifteen hundred and one years ago. Although there are still uncertainties regarding his year of birth, his year of death is more confidently determined by the data in his biography, which gives even a date for it: 17th of April.

His biography, one of the two sources of information for his life, was written by Marinus of Neapolis (modern Nablus, near Samaria, ie. he was probably a Jew), his disciple and immediate successor. Stylistically it follows a characteristic plan based on the Neoplatonic theory that "true happiness" (eudaimonia) depends on the kinds of "virtue" man acquires during his life, and reviews how Proclus fared according to each. This pattern is similar to other biographies, such as Porphyry's Life of Plotinus, Philostratus' Life of Apollonius of Tyana, and Iamblichus' Life of Pythagoras, which can be best described as "Hellenic", as opposed to Christian, hagiographies. Thanks to it, his Life is not just a dry account of biographical details, but a rich source of inside information on Proclus and the kind of community he lived in, as presented by someone who knew him intimately and shared his way of thinking. It was written less than a year after his death.

The other source is Damascius' Life of Isidorus (extant only in few fragments), both of whom were Proclus' students, Damascius being the head of the School at the time of Justinian's ban in 529. It is a more prosaic account but is full of invaluable information, including some irreverent anecdotes, about the later Platonic philosophers and Proclus.

Proclus was born in Byzantium in a family originally from Xanthus, a wealthy seaside town in Lycia (with an ancient temple of Apollo), to which they returned when he was still a young child. His father, a barrister, seems to have intended him for a legal career too

for after studying for a short while in Xanthus he was sent to Alexandria to study rhetoric and Roman Law. In these, according to Marinus, he excelled: this would explain his methodical approach to philosophy. In addition he became proficient in Latin. But Proclus seems to have become more interested in philosophical matters, and his studies turned to Aristotle and mathematics: his subsequent performance certainly bears testimony to his interest and competence in mathematics and the mathematical form of presentation. It is highly probable that Proclus entered a Neoplatonic circle about this time, and certainly while on a short visit to Constantinople (Saffrey and Westerink, *Pl.Th. Budé*, vol.I p.xii, suggest that all this activity is linked to the complete re-organization of the Schools by Theodosius II. in 425, and is a pointer to the concomitant university politics). Upon completing the round of studies at Alexandria (the study of Aristotelian logic was also considered as the preamble to the study of Plato, in the Neoplatonic curriculum), he proceeded to Athens, the seat of late Neoplatonism.

At Athens he became quickly accepted in the close-knit circle of devout pagans who administered and lectured at the "Academy" in a predominantly christian town. According to Marinus, all this took place by his 20th year. Whether the transition happened with his parents' approval we do not know, for they drop entirely out of the picture. Significantly, the biography turns its attention to how Proclus became very intimate with Syrianus, the effective head of the School, whom he later acknowledged as his spiritual father. It is as if Proclus' material origins, the parents of his body, had ceased to be important: upon coming to Athens, the city sacred to the goddess of wisdom, he had entered the world of philosophic spirituality.

Under Syrianus he was instructed both in Plato and Aristotle in the distinctive Neoplatonic manner of exegesis, Aristotle and each Platonic Dialogue corresponding to the appropriate level of understanding of "reality".

Fortunately this education included less "elevated" subjects as well, such as political philosophy, which, as Marinus points out, was to prove useful later in the administration of the School and in the dealings with the civic authorities. He was also instructed in the theurgic aspect of Neoplatonism, as derived from the Orphic and Chaldean writings, and was initiated in its secret rites by the daughter of the official head of the School, Plutarch (not the 2nd c. biographer). Plutarch was then very old. Upon his death Syrianus succeeded to the headship (ca 432). Proclus by this time had definitely become one of the 'family', he lived with Syrianus' family, he was treated on equal terms with Syrianus' own son, and he called Syrianus "father", while speaking of Plutarch as "forefather". With Syrianus' influence and certainly his lecture notes, Proclus embarked on the grand task of composing a commentary on Plato's Timaeus, and "much else", as Marinus phrases it, which he completed, perhaps in a first draft form, by his 28th year. There is evidence that he may have actually begun the work near the time of Syrianus' death (ca 437). After a short interlude, during which an antagonist, Domninus of Larissa (Syria), was elected the head or perhaps a co-head, but who soon returned to Syria (most probably ousted by the Proclan faction), Proclus remained the sole leader of the School and became the Platonic "Successor" (Diadochos) of the "Golden Chain" around his 26th year.

Proclus spent approximately fifty years in charge of the last institution of learning at Athens, during which he taught and preached the Neoplatonic philosophy, wrote his numerous works, discharged his administrative duties to the School and the Imperial authorities, and also found time to practise his religion rigorously. He never married, not through lack of offers or predisposition but because he was already married to his work.

His time spans most of the 5th c., a period which saw some of the most dramatic changes in history, the great Barbarian Migrations and the final phase of the Ancient world. It was certainly a time of destruction: the collapse of the western frontiers of the

Roman Empire (406-10), the invasion of the Huns (440-452), the sacking of Rome first by the Visigoths (410) and then by the Vandals (455), and the end of the Western Empire itself (476). One of Proclus' occasional students, Anthemius, a patrician from Byzantium, became Emperor of the West and was subsequently murdered (467-472) in those final days. On another front, closer to home, the pagan Neoplatonists had their temples closed and practises forbidden by the Eastern Emperors, and in Proclus' own time Athena's great statue was removed from the Parthenon. They had also witnessed the anger of the Christian mob in the lynching of Hypatia, in Alexandria (415). In their frequent dark references to the Christians, this was the "wild beast" which had to be left sleeping at any cost. But it was also a period of settlement and new beginnings, the birth of the Western European kingdoms: of the Franks and Burgundians in Gaul (450's), of the Visigoths in Spain and Toulouse (420's) and of the Ostrogoths in Italy (480's), who continued the Roman culture, and of the Anglo-Saxons and Scots in Britain (450's), who did not. Meanwhile in the East, the traditionally more wealth-producing half of the Empire found itself freed from any responsibility for the West, and seems to have enjoyed an economic increase.

The world was changing, and in the process of attempting to manage the demands made on the Empire as a whole, viz. the variety and increase of pressure at both the western and eastern frontiers, as well as the constant problem of internal war for succession, the old landmarks of "Antiquity" which were still evident in Plotinus' time (204-270) had disappeared: Rome's central authority, the legion with its cohorts, the footsoldier with his "pilum" and "gladius", long-distance trade and travel, and religious tolerance. The horizons of the world in Proclus' time had in many ways shrunk, and, as Peter Brown puts it, everyone was consolidating his own roots. In the West, central authority became shadowy and finally non-existent. Government fell into the hands of the local people, the dukes and counts of the Late Empire and then the chiefs and kings of the barbarian nations. In the East, the Emperor consolidated his own position as the absolute and eventually the sole monarch at the New Rome. He was at the head of a highly structured state hierarchy

whose classes in order of rank or dignity were, the Illustrious (the consuls, the patricians, the masters-general of the army and the Palace ministers), the Respectable (the vice-praefects or vicars, the counts and dukes) and the simply Dignified (proconsuls and presidents of provinces). Below them were to be found the Emperor's "agents" or messengers, his eyes and ears, and the various military and civil ranks. They, together with the ordinary people, were classed as mere "subjects" of the sovereign, the peasants being tied to their farming land.

To what degree Proclus was consciously affected by all these events is difficult to ascertain. He clung to his own cultural and intellectual roots, classical education, philosophy and religion. Nevertheless in one aspect at least, the similarities between the state hierarchy of his region and his philosophical system are inescapably apparent.

Athens was still a university town, although most of the Schools whose Chairs had previously been endowed with Imperial funds had passed away together with the funds. The Platonic School alone (which in an effort to rekindle a link with the first institution of learning to be founded in the 4th c. BC, had begun to refer to itself as the "Academy") still functioned and prospered. It managed to do so not only because of the positive spirit Neoplatonism was offering, but also because it had become entirely self-supporting. This had been achieved through a series of recent benefactions, doubtless from the estates and investments of its scholars, and the endowments given to it by the remaining pagan, old aristocratic families. Its wealth seems to have been considerable. Proclus as a "Successor" received a revenue of 1000 gold solidi a year; the gold solidus was the only coinage which had kept its value through the huge inflation of that period, mainly because it was the coin of the Imperial authorities themselves and the army ("soldier" is etymologically derived from solidus). For comparison purposes, that amount was the annual pension of a chief Palace minister.

The existence of this private wealth in the School, plus the pagan beliefs of its professors, combined with the usual problems associated with the presence of a high status university in an otherwise low status town (as civic Athens had become), life must have been full of frictions which demanded the outmost diplomacy. Proclus fared rather well. There is only one recorded instance when he thought it fit to take a sabbatical for a year in Lydia, Minor Asia, and apply the Pythagoric rule "live unobtrusively" (*lathe biōsas*) until, as he put it, "some god freed me from those many unending troubles" (*Hyp.Astr. proem.*). Yet, he must have felt sufficiently confident in his position to continue to practice his religion not only at his place of work but also at the temples which had been ordered closed by Imperial decree. His religious pantheon included, according to the syncretic tendencies in Late Antiquity, not only the Hellenic, but also the Egyptian (Isis), Chaldeo-Babylonian, Arabic, et al. As he was quoted of saying, "it is not befitting to the philosopher to worship at one temple only, either of his town or of his native land, but he must be a minister of the whole world in common" (*Marinus Life, ch.19*). And this is key to the kind of religious view Neoplatonism was expounding: divinity takes many particular shapes and forms, but there is one divine nature common to all.

He seems to have had an acute sense of responsibility, probably spurred by an appreciation of his predicament, both for the people in his direct charge at the School and of the city. Marinus mentions the many times he helped them directly or prayed for their welfare, even calling for rain to fall during a drought in which he was naturally successful as a good theurgist. He seems to have been a very good lecturer. Marinus tells us how he inspired his audiences, and that many would flock to Athens from all over the Empire to hear him speak or become his disciples. A list derived from many sources includes such attendants from Alexandria, Pergamum, Antioch, Judea, Egypt, including high ranking dignitaries from Constantinople, Dalmatia and Rome. But above all he was a 'workaholic'.

During Proclus' tenure the "Academy" gained a popularity probably unattained since its ancient days. Athenian Neoplatonism spread far and became the Neoplatonism which was to remain so influential. Proclus lived until the old age of 75. In the last five years or so he seems to have suffered from a brain-centred disease (perhaps a tumour). Marinus indicates that he could have lived longer, if it had not been for his obstinancy in keeping to his arduous work schedule (and diet). Marinus also gives us a flavour of how his last days were spent and the mixture of awe and sorrow felt by his friends and disciples who surrounded him, not the least because like Marinus they must have appreciated that they and the School had been exceptionally fortunate with Proclus, and things would never be quite the same again.

PART I

A GUIDE TO PROCLUS' SYSTEM

SECTION A. THE GENERAL PRINCIPLES

Introduction

There is no work of Proclus which is devoted entirely to all of the general principles (the ontology) of his system. The works which come closest to presenting an integrated picture are the "Elements of Theology", and vol. I and II of the "Platonic Theology"; "Theology" has the meaning of "first" philosophy or metaphysics. However, a more accurate impression can only be gained by reading at least all six books of the extant "Platonic Theology", Proclus' magnum opus, where the general principles may be observed operating through his Neoplatonic cosmos. Proclus' ontology is thus a distillation of certain repeatedly used philosophical themes, which are the following :

- (i) The triadic structure of things.
- (ii) That "everything is in everything but appropriately in each".
- (iii) Causal linking is afforded by similarity and sympathy.

There are perhaps two ways of presenting the material, each suited to its purpose. The one most generally employed (eg. R.T.Wallis) is to approach Neoplatonism historically and emphasize the continuity from Plato and Aristotle, the Stoics and Middle Platonists, while concentrating on the Athenian School and Proclus after presenting a thorough account of Plotinus and to a lesser degree of Iamblichus. The other (eg. L.J.Rosán) is to commence from the deep-end, so to speak, from definitions about "existence", "power", predication, and their relationships in Proclus. For the purposes of this introductory account I have opted for the latter approach of starting directly from Proclus' basic concepts, since the more general works are already widely available. However, my starting premises are different from Rosán's, mainly because I think that those selected by him are perhaps too basic and may somehow lessen the sense of continuity with past philosophical notions and concerns

and with the body of knowledge representing at least nine centuries of philosophical thought, an important factor in attempting to understand ideation in Late Antiquity.

I prefer, therefore, to use as a starting premise the basic assumption central to Proclus' philosophy, that the whole universe exists and functions by analogy to the relationship between "one cause" and its "manifold effects": viz. the Neo-Platonic answer to the old problem of One and Many.

1. THE TRIADIC MOTIF

The idea that the many phenomena are due to simpler causes and may ultimately be due to one principal cause has a long history. It suffices to note here, that Plotinus properly established the central role of the "One" in Neoplatonism, as well as the significance of existing by "imitation" or "analogy" to It (the concepts of imitation, *mimēsis*, and participation, *methexis*, were characteristic of the Pythagorean-Platonic tradition).¹

The necessity of having the One (to hen) both logically and causally prior to all pluralities or manifolds (*plēthos*) can be found in Proclus in *El.Th.* 5 & 11, for example. Yet these pluralities are not true pluralities, that is, composed of an unlimited or infinite number of members, which can also be pluralities, because that would lead to infinite (*eis apeiron*) regress and multiplication, which, as Aristotle had established, was unacceptable. Thus Proclus' pluralities are limited by the quality of unity, which is the first statement of the "Elements of Theology" : "Every plurality partakes in some way (*pē*) of unity" (1). By this definition he imposed, in effect, a limit to the quantity or number of member-entities found in the universe,² which in turn was in accordance with the general view of one limited universe, literally "unus-versus"³

But the One and the plurality still have nothing in common to serve as a causal bridge from the one type of existence to the other. The One and the multitude are still very dissimilar despite the underlying limitation by unity. And for Proclus "causation" can only take place by similarity (see ch. 3). "For since the producer (paragon) is necessarily superior to the product (paragomenon; NB. order of priority becomes, also, order of superiority), they can never be identical without qualification, or equal in power. And if they are not identical and equal, but different and unequal, either they are entirely distinct from each other or they are at once united and distinguished (*hēnōtai kai diakekritai*). But if they are altogether distinct they will be unrelatable (*asumbata*) and there will be no sympathy between effect and cause" (2).

Proclus' characteristically Neoplatonic solution to the problem of relating two extremes is the employment of a third, mean term, an intermediary (mesos)⁴ which can be similar (homoion) to both extremes but not exactly the same. This is the origin of the "triad".

Thus after the one cause comes a more proximate effect which can simultaneously be the more proximate and similar cause to the remotely different effect (which is a manifold since it is not-one). The mediating type of existence is also a manifold, since it is not-one, but with a lesser number of members than the more remote since it is closer and more similar to the One. This is the basic triad: one - one & not-one - not-one (cf. quote 2 above), or in more general terms $x - x$ & not- $x - x$. By re-applying the same formula a train of "intermediaries" can be unfolded, each being the intermediary between the previous and the next. Fortunately their number cannot regress to infinity since "all pluralities partake of unity". With such reasoning Proclus could "bridge" every conceivable disparity or discontinuity between different types of existence and ensure, at least to his satisfaction, that the universe as a whole is a continuum.⁵

Another concept associated with the One and the many is that of universality or wholeness (holotēs) and the particular (merikos). Since the One is the cause of all the universe then its causal power must be all-universal. As existence becomes gradually, through the train of intermediaries, less unified and more pluralized, the extent of the range of the causal power at each grade becomes correspondingly less universal, i.e. more particular or articulated. In this sense it becomes less powerful. "They which are more remote from the One (porrōteron) are participated by more composite (sunthetōterōn) beings, whose power is diminished (dunamei elassoumenōn) but which are multiplied in number and quantity (arithmō plēthei pollaplasiazomenōn). For in general, additions (prostheseis) to them are subtractions of power (aphaireseis dunameōn). And that which is nearer (enguteron) to the One...is more

uniform (henoeidesteron) and exists with the more universal (holikōterais) causes. And it takes place according to the proportion of power...for the things which are the causes of a greater number (pleionōn aitia) imitate the power of the cause of all (ie. the One) " (3). In other words, since the intermediary causes cannot by definition add to the all-universal power of the One, their power can only be more divided and particular (meristos).⁶

Apart from the view of a scale of increasingly particularized causes, there is some evidence that Proclus had a scale of "effects". This secondary scale would emphasize the effect-aspect of the intermediaries ie. the ability to receive, instead of to exercise, causation. This more passive power seems to be called "imperfect" (ateleēs), as opposed to the more active power-to-cause which is called "perfect" or complete (teleia).⁷ A scale based on receiving (pathein dunamenon) probably refers to a parallel hierarchy of "substrates". This will be further discussed in the chapters on Matter (I.B.8.5.2 & 3).

From the relationship between cause and effect via "power" follows another form of the triad⁸:

- (i) cause (aition, aitia) or producer (paragon) or agent (poioun)
- (ii) power or potential (dunamis)
- (iii) effect (aitiaton) or product (paragomenon) or subject (ginomenon).

To recapitulate, each intermediary plurality after the One cause of all is in succession less universal and potent cause, and has correspondingly more member entities. This is in short the basis of the Proclan hierarchy.

Still another form of the triad is⁹:

remaining or abiding (monē) - procession (prohodos) - return (epistrophē). Essentially it is (i) proceeding from "remaining", expressing the sequence from the One to plurality, and (ii) returning to "remaining", namely the sequence from plurality and division back to the One.

This more dynamic process follows mainly from three "analogies":¹⁰
(a) The causal entity "by imitation to the One" can be thought of as unmoved or stable (akinēton), and therefore the relationship cause - power can be regarded as the relationship unmoved - self-moved & moving (auto-kinēton), whereas the effect can be seen as that which is "moved by something else" (heterokinēton).¹¹
(b) The cause is like the arithmetical monad, which is able to yield a series of numbers while itself stays undiminished.¹²
(c) The favourite Plotinian analogy, that the procession from the One is like the radiation or emanation (eklampsis) of light from the Sun, which leaves the source undiminished.¹³

Plotinus had also introduced the idea that the first cause should also be the "final cause". In this way the stability of the Platonic "archē" (ultimate principle) was preserved.¹⁴

Of the last two analogies, both of which refer to procession from an unabated, "remaining", origin, the numerical seems to have been rather more of a favourite with Proclus inasmuch as it allowed for return to unity. "Every order has its origin (archomenē) in a monad and proceeds (proeisin) to a manifold coordinate with it, and the manifold of any order may be carried back (anagetai) to a single monad...Thus in each order there exists a single monad prior to the manifold, which determines for the members of the order or sequence the unique relation (logon) to one another and to the whole " (4).

Thus, by combining a harmonized Platonic-Aristotelian motion theory (unmoved, self-moved, moved by another) with (neo)Pythagorean number symbolism and Plotinian emanationism, Proclus felt able to address such diverse topics as mathematics, cosmology, ethics (moral descent - procession, ascent - return of soul), and the knowledge of God (return) with one set of basic principles.

The sequence remaining is appropriately called "cyclic."¹⁵

returning  proceeding

It is essentially the metaphysical relationship between cause and effect seen in dynamical terms, and therefore it is primarily a motion outside space and time. Proclus derives the paradigm of "circular" motion not from a geometro-philosophical axiom like Plato, but from the ontology of causality. However, inasmuch as corporeal motion is ultimately due to incorporeal action, such metaphysical motion can and does manifest itself in space and time, as for example in the classic case of celestial motion.¹⁶

The previous triad is frequently interchanged with the triad, being or existence (on) - life (zoē) - intellect (nous), which is mainly derived from Plotinus.¹⁷

Another is substance (ousia, hyparxis) - power (dunamis) - activity (energeia), which is based on Aristotle. In late Neoplatonism, and especially in Proclus, it developed into a more technical and sophisticated concept, which denoted the three-into-one relationship of substantial existence, the capacity or power to act, and the execution of the action, in a continuous state. By re-introducing the triad within each of its three elements (eg. activity of power, power of activity, etc.), and by combining it with the triad cause - power potential - effect, all of the minute stages in causation could be accommodated.¹⁸

There is also the important triad finite or limit (peras) - infinity or infinitude (apeiria) - mixture (mikton). It originated in the Pythagorean pairs of opposites, but it can also be found in Plato (Philebus 16C ff.) and Aristotle (Physics III, Meta. I). A parallel triad is male (arrēn) - female (thēlus) - resultant (apotelesmata, gennēmata). For Proclus, the first member of these two triads seems to represent 'discreteness', the second 'continuity' whereas the third is the mixture-product of the two, virtually everything in the universe¹⁹ (for Limit-Infinity see I.B.1.2).

The group of triads, which typifies perhaps most of all the late Neoplatonism, is :

- a) The unparticipated (amethekton) - the participated (metechomenon)
- the participant (metechon).
- b) The unparticipated - the participated and self-subsistent (authupostatos) - the participated but mere irradiation (ellampsis).

a) The expression "to participate in" or "to partake of"²⁰ had been used by Plato to describe the manner by which a sensible particular could have a "form". Such a relation between a 'higher' and a 'lower' accorded with the hierarchical mode of explanation in late Neoplatonism, since "participation" (methexis) emphasized that an inferior (the "effect" or the subject) cannot in itself possess the entire property of a superior (the "cause" or the attribute, not forgetting that such attributes or characteristics are for Proclus entities). For example, in the relationship of body-soul, the body does not itself possess the means of its own motion, but it can be said to "partake of"(metechei) soul, the principle of motion, and thereby acquire movement. The body is the participant and soul the participated.

The "unparticipated" arose from the reasoning about the One and many. The participated attributes must have been produced by an appropriate cause, which like the One must be in some sense unique and singular. But the chief requirement was that it should be exempt from the divisibility implied in direct participation (for participation and divisibility see Plato ref. above). Hence such a cause has to be unparticipated, although the series of attributes cum entities which emanate from it can be participated.²¹

Other jargon terms for the unparticipated include, the "monad" (monas), the "first" or "prime" (prōtos), and, normally, the "whole" or "universal" (holon), although in the case of soul especially, "universal" soul may also refer to the World-Soul, which is participated (by the world), as opposed to the "monad" of souls, which is the unparticipated.

Each unparticipated cause is thus the originative entity of the family of participated attributes, which pertain distinctly to it, eg. Intellect and intellects, Soul and souls etc. It also marks a substantial change in the procession, the properties which are characteristic of intellect, for example, are different from those of soul.

The participated entities, like the "intermediaries", are the ones which actually "take part" in causation. By contrast to the simplicity of the unparticipated, they constitute the "plurality" or "multitude" (plēthos) of the relevant attribute, as in souls.

The substructure of each of the unparticipated causes is the subject of the "Platonic Theology", and the participated are mainly examined in the "Elements of Theology" and the "Commentary on the Parmenides".

The "participants" are the attributes cum entities affected by the participated, or from another point of view, the entities which have the "participated" properties. They correspond more or less to the third part in the triadic causation, hence another name for them is "resultant" (apotelesma). The participants are always on a lower 'rung' hierarchically than their participated entity, and are members of the particular lower order.

El.Th. 24 summarizes well this triad : "All that participates (metechon) is inferior to the participated (metechomenou), and the latter to the unparticipated (amethektou). For the participant is (on) incomplete prior to the participation, and by participation has been made complete (teleion), it is therefore in all ways subordinate to the participated...Again, the participated being due to some one, is allotted a lower mode of existence; for the latter is more akin (sungenesteron) to the cause of all (viz. the One), while the former is less (hēttōn). The unparticipated, then, precedes (hēgeitai) the participated, and these the participants. For to express it in short, the first is

one prior to plurality (pro tōn pollōn); the participated is within plurality (en tois pollois) and is one-and-not-one, while every participant is not-one (ouch hen) yet is one (ie. is still limited by unity ; see earlier)." And this links with the basic triad one - one & not-one - not-one.

b) The series arising from the triad unparticipated - participated and self-subsistent - participated but not self-subsistent, is known today as the "horizontal" hierarchy, as distinguished from the "vertical" hierarchy of participated - participant. The horizontal hierarchy contains essentially the same family of attributes, intellects, souls etc., and therefore can be represented along a x-axis. The vertical involves substantial changes, eg. from intellect to soul, and essentially different families of attributes. This can then occupy the y-axis. The scholars who originated or promulgated (eg. E.R.Dodds) these labels maintained, that they had an actual basis in Proclus' own conceptualization if not in his nomenclature. This has been much debated and is now very much in doubt, not least because all of the jargon terms which were supposed to refer either to the transverse or to the descending series seem to appear indiscriminently in both. So, the only possible value of these two labels is perhaps that they facilitate a graphic representation of Proclus' system.²²

Both this and the previous triad are based on the principle, that "every producing cause brings into existence things similar to itself (homoia pros heauto) before the unlike (anomoion)" (5), which is another form of expressing x - x & not-x - not-x.

Of the participated members some are most like their unparticipated origin. They are called "self-constituted" (authupostatos), "self-complete" (autotelēs), "self-sufficient" or independent (autarkēs), and are said to be separable (chōriston) from their participants, thus able to exist by themselves.²³ This independence is a measure of their similarity to the most-independent, as it

were, unparticipated cause.

The self-constituted are very important in Proclus' system. They represent the more perfected or proper aspect of the corresponding attribute; for example, "ideas" or "forms" in intellect, "rational" in soul, etc., and in the case of the One the self-determined, "independent" unities-"henads" (see I.B.1.1-3, also II.B.2). In this respect, applying 'aspects' or similar terms to the self-constituted may convey the impression that they are mere features of something more absolute and can be particularly misleading, for virtually the contrary is true : as their title testifies, they are the independent, 'absolute' qualities cum entities in the universe.

The ones which are indeed 'aspects' are the participated but merely "irradiations". If the self-constituted are the participated members most like the unparticipated "monad", the so-called irradiations are the least like. Other technical names for them include, "images" or reflections (eidōla), "copy-images" (eikones), mere "appearances" (indalmata), and perhaps, "symbols", "signs" (sunthēmata). They are "inseparable" (achōristos) from their participants, and are in need (deontai) of them for existence. They invariably represent the "particulated", divided, and "incomplete" or imperfect (ateleis) aspect of the relevant characteristic. At their most remote states of irradiation, the characteristic is only just a phantom of its proper nature : so, for example, even plants have a kind of "life" (by partaking of a mere appearance of life), and irrational animals have an echo of "intellect".²⁴

With regards to the links of causation or participation between two adjacent ranks in the hierarchy, Proclus defines a twofold path between a participated member of the lower and the unparticipated monad of the higher : "Every particular member of any order can participate (metechein dunatai) the monad of the rank-diacosm immediately supra-jacent (huperkeimenē) in two ways

(dichōs); either through (dia) the whole-universal of its own order, or through the particular member of the higher rank which is correspondent to it (sustoichou pros auto) by relation (analogian) to that whole series. For since every reversion takes place through similarity, and the particular member of the inferior order is dissimilar (anomoion) to the monad of the superior both as particular to universal (hōs holō merikon) and as one order to another...it is evident, that the reversion of the former to the latter can take place, as through similars to a dissimilar, through these two mean terms (mesōn : viz. the particular member of the higher series, or the monad of the lower). For the one is similar to it as particular to appropriate particular, and it is closely related to the other as a member of the same series, while the whole-universal of the supra-jacent series is dissimilar in both respects" (6).²⁵

But perhaps it requires first the clarification, that although an unparticipated cause is not directly participable by any member of a lower series, it is itself a participant of a higher. Indeed, in the Proclan universe every attribute-entity (bar the One and the substrate of Body or of Matter, including their corresponding series of members) is both a participant in some other higher attribute-entity and participable, directly or indirectly, by others below.

"Every unparticipated term arises 'qua' unparticipated from no cause other than itself (N.B. especially true for the One)...If there be superior terms from which it is derived, it proceeds (proeisin) from them not in the capacity of unparticipated but in the capacity of participant (ouch hē amethekton...all' hē metechon)...'Qua' caused, it is a participant, not an unparticipated principle; 'qua' unparticipated, it is a cause of participated and not itself a participant" (7). "And the Intellect is filled (ie. partakes of) with 'real-existence' and 'life', but is imparticipable to souls and to those posterior to it" (8).

Returning to the twofold line of reversion and participation, the two paths may be schematically represented thus :

(i) $A - a_B \overset{p}{=} B - b$

(ii) $A - a_B - a_b \overset{p}{=} b$

"A" is the monad, "a" is a participated member of the higher series, "B" is the monad, "b" is a member of the lower series and the end-participant of this sequence.

The subscripts to the terms of the higher series identify their participant in the lower, while the superscript "p" stands for such direct participation.

This schema gives some idea how the terms of successive 'strata' in the hierarchical arrangement relate to each other, but it also emphasizes that each entity retains its specificity, while being a member of a family of terms at each level. For example, a celestial body is thought to move circularly both according to its own individual "moving principle" (b), as it is determined by its "formal" characteristic (a_b), and according to the general moving principle, the "World-Soul" (as in $B - b$, although strictly the World-Soul is a participated term), whilst its individual "formal" principle is also part of a more general whole ($A, a_B - a_b$) (see II.B.2., 6.1.; cf. I.B.5.1.&2.).

Finally, on the triadic motif, one should mention the various "dialectical" triads, which Proclus uses extensively to produce the proofs of the "Elements of Theology" : If X and Y then (i) X the same as Y, or (ii) X not the same but similar to Y, or (iii) X altogether dissimilar to Y; (i) X the same as Y, or (ii) X superior to Y, or (iii) X inferior to Y.

He also employs similar kinds of logic to tidy the inconsistencies which in his opinion existed in some doctrines, inherited from previous less rigorous Neoplatonists ; a good example is the logical demolition of the "partial descent" of soul into body, Plotinus' teaching, and his conclusion that soul descends totally (El.Th. 211; cf. Plotinus Enn.IV,8; V,1 ; see E.R.Dodds notes on prop.211, p309-10).

NOTES ON I.A.1

- 1 It involves, inter alia, the notions, that there are causes and effects, that there are certain simple substances common to all natural entities, viz. the notion of composite entities, and that the events of the changeable natural world are due to more durable and permanent principles, besides the notion that there is one cause of everything. The operative term denoting the ultimate principle and the basic substance is "archē". For the notion of cause and effect, M.Frede "The original notion of cause" in "Doubt and Dogmatism" (1980) p.217-249 ; G.E.R.Lloyd "Magic, Reason and Experience" (1979) p.49-55, 25-8; and in "Polarity and Analogy" (1966) p.230-2; R.Sorabji "Necessity, Cause and Blame"(1980) esp. ch.1 - 3; also, P.H.de Lacy "The problem of causation in Plato's philosophy" Classical Philology 34 (1939) p.97-115. The pre-Aristotelian Greek theories about ultimate causes are given mainly in Arist. Meta 983a-993a. The notion of One cause is Parmenidean, cf. Die Fragm. der Vorsokratiker Diels frg.8, as well as Pythagorean - albeit as an "opposite" to the dyas. For Plotinus' One, Enn. I,7; V,4 & 5; VI,2 & 9. For the background to the Neoplatonic One, and the development of the hierarchical ordering, see E.R.Dodds "The Parmenides of Plato and the origin of the Neoplatonic One" Classical Quarterly 22 (1928) p.129-42 ; J.M.Rist "The Neoplatonic One and Plato's Parmenides" Trans. and Proceed. of the American Philological Association 93 (1962) p.389-401 ; and concisely accounted in Saffrey's and Westerink's introduction to the Budé edition of the Pl.Th., vol.I p.lxxv-lxxxix. It should be noted that the Neoplatonists, especially after Iamblichus, thought^o Plato largely as a "Pythagorean" Plato. Eg., see Proclus' intro. to the Timaeus.Comm. In Tim.I 1, and Syrianus In Meta. 10, 80, 190.
- 2 Aristotle's arguments against infinite body and quantity may be found eg., in Phys.III, ch.4-8 ; cf. Wicksteed's and Cornford's intro. to the Loeb ed. of Phys. vol.I. Proclus seems to have accepted infinity in potential and in "power" as well as in division into parts, eg. In Tim I,453,15-30: infinite "kata dunamin" exists both in the celestial and the sublunary realm, "kata plēthos" never as an indivisible whole but only as parts. Also see Sorabji's discussion in "Time, Creation and the Continuum" (1983). That the One first cause cannot be an actual manifold, was also a requirement of the theory of knowledge; an infinite One would render certainty and knowledge in science impossible, cf. ElTh,11, also see Dodds comments p.188-9 and 245; Pl.Th. II,4-14 (Budé).
- 3 For Proclus' arguments for one, finite universe, and the existence of a finite number of "forms"; In Tim. I 448-458; it includes accounts of other theories on the plurality of worlds, both as infinities and as finite infinities.

- 4 The law of "mean" terms (see Wallis p.11, 123, 130 etc) was formulated out of a variety of backgrounds, philosophical, religious and social. With the increasing emphasis on the transcendence of God came the need of "intermediaries" between man and God. This had its parallel in the structure of the Empire, especially with the gradual theocratic elevation of the Emperor (cf. Historical note), and in the heavily bureaucratic administration: the latter meaning of "meson" seems to survive in modern Greek to indicate the person, official who can 'intervene' and 'mediate' on one's behalf. Philosophically, Plato had employed the terms "mesos" and "metaxu" to describe the class of entities between the Forms and the sensibles, representing the mathematical, Phaedo 74C, Parm.129B, and the status of soul, Soph.248E-249D, Tim.90A-D; however, the passage more directly related to the role of "binding" intermediaries was Tim.31B-C, where the Elements Fire and Earth are said to be in need of a third intermediary bond (cf. In Tim. II,13-18).
- 5 Train of intermediaries, cf. Prov. Fato III col.163-4, II col.153 The multiplication of hypostases, as Sambursky and Pines reiterate in the "Concept of Time in Late Neoplatonism" (1971) p.12-3, narrowed the gap between adjacent levels, but the motive for doing this may be better appreciated in the context that the levels of existence are modes, grades of power and activity, see A.C.Lloyd "Cambridge History of Later Greek ... Philosophy" p.281-2,294-5; cf. S.E.Gersh "Spiritual Motion in the phil. of Proclus" (1973) p.94-8.
- 6 The equation, unity - universality - power, and their relation to division, also El.Th.60-2, 93-5; in the latter, division and loss of unity is equated to infinite division, through stages of relative infinity, see Dodds' notes p.248, 233. Also see Pl.Th.III 14,20-2.
- 7 The concepts of "perfect", complete-ing, and "imperfect", incomplete power are those of active and potential power, the distinction being more perspicuously defined and maintained than in Aristotle, see El.Th.77-80. The active power is creative, the potential is capable only of receiving. For a detailed analysis see L.J.Rosán p.68-80, S.E.Gersh id. p.41-8, 63-72, and A.C.Lloyd "Neoplatonic logic and Aristotelian logic" Phronesis 1 (1955-6) p.58-72 and 146-60, cf. Lloyd "The principle that the cause is greater than the effect" Phronesis 21 (1976) p.146-56.
- 8 For this triad, eg. El.Th. 7,11,57
- 9 Eg. El.Th. 25-35; see A.C.Lloyd "Procession and division in Proclus" in H.J.Blumenthal and A.C.Lloyd "Soul and the structure of Being in Late Neoplatonism" (1982) p.18-45.

- 10 The concept of analogy in late Neoplatonism was central to the description of properties, and was characteristic of the Neoplatonic mode of exegesis. See, J.A.Coulter "The literary Microcosm" (1976) p.39-59,68-72; J.Dillon "Image, Symbol and Analogy" in "The significance of Neoplatonism" (1976) ed.R.B.Harris p.247-258.
- 11 Eg. El.Th. 26,14,17,20, also Dodds' notes p.201, cf. El.Phys. I,19;31, also see Pl.Th. I,60.
- 12 Eg, El.Th. 21,extract quote (4), 22, 10; Pl.Th.III 7-9, also see Dodds' notes p.209; A.Charles-Saget "L' architecture du divin Mathematique et Philosophie chez Plotin et Proclus" (1982)p.201-5.
- 13 Plot. Enn.IV,3 ; V,1,6. Cf. Proclus In Tim.II 102,7-27.
- 14 Plot. IV,8,6; V,4; V,1,6; V,2,1.
- 15 El.Th. 33; see S.E.Gersh "Spiritual motion in Proclus" ch. three, diagram p.72; cf. L.Sweeney "Participation and the Structure of Being in Proclus' El.Th." in "Structure of Being" ed.R.B.Harris (1982) p.141-55, but esp. diagram on pg.151. Another way is to represent clearly the triangular/triadic frame of the circle, see Gersh's diagrams in "From Iamblichus to Eriugena" (1978).
- 16 The dynamic view of causation is at the basis of Proclus' metaphysical system and cosmology. His development of the concept of "unmoved motion", as Gersh called it, represents the marrying of the notions of motion and rest in all their ramifications. It is also indicative of the high level of sophistication and innovation in the philosophy of late Neoplatonism. For a most cogent treatment see S.E.Gersh "Spiritual motion" op.cit. esp.from ch.three till the conclusion, particularly f.note 3 p.60-1.
Corporeal motion due to incorporeal powers or agents, cf. El.Th. 14-17, 80; incorporeal and corporeal motion, cf. In Rep.II,126,8-10; celestial motion, cf. Pl.Th.IV,21,1-5 (Bude), In Tim.II,279-292.
- 17 Eg. El.Th.101-3; cf. Plato Sophist 248E. In Plotinus, Enn.VI,6 VI,7; II,4,5. Actually, in Plotinus it appears to be existence - intellect - life, see VI,6,8, ie. the last two terms are reversed.
- 18 Eg. El.Th. 169,cf. In Tim. I,255,30-256,2 also I,205,12-14, I,242,9; Pl.Th.II 50-1. For a detailed examination of the combined operation of the two triads see Rosan "The philosophy of Proclus" p.67-70, and Gersh "From Iamblichus to Eriugena" p.27-45.
- 19 Male-female, father-mother,limit-unlimited, eg.In Tim. I 48-50; I 206,12; II 221,12-5; Pl.Th. I 122-3 (Bude).

- 20 "metechein", "methexis", "metalambanein", eg. Plato Phaedo 100, Parm.129-133; see R.E.Allen "Participation and Predication in Plato's Middle Dialogues"(1960) art.4 in "Studies in Plato's Metaphysics" ed. R.E.Allen (1965), cf. G.E.L. Owen "The place of the Timaeus in Plato's Dialogues"(1953) art.16 in Allen. This was not proper predication but an adaptation of it to the theory of Forms and Copies, Being and Becoming, participation being the "communion" (koinōnia) between a primary and a derivative, a non-symmetrical share-in, cf. Sophist 251-9; also J.L.Ackrill "Plato and the Copula" art.11 in "Plato" vol.1, ed. G.Vlastos (1978). The asymmetry is consistently maintained by Proclus, "to participate" cannot mean "to possess" as Rosan translates it except perhaps in the case of a "dependent" property; another term in Proclus is "metousia" eg. In Tim. I,18,16; Decem.Dub.22. Moreover, "partaking" seems to have almost Eucharistic connotations esp. in connection with the notion of "overflowing power" (periousia dunameōs), cf. El.Th.27,121, and ps.Dionysios Div.Nom. viii,6. Proclus's sources would be non-, even pre-Christian. However, the sense of "communion" seems to predominate over the asymmetry, 'higher' entities are not totally unaffected by 'lower' eg. quote 39; also El.Th.80.
- 21 Eg. El.Th.23,21; cf. El.Th.160 with 161, and El.Th.100. However, there is some form of participation, or else no continuous chain of procession from and return to one cause, El.Th.1;23; the amethekton can be indirectly participated via the metechomena: see El.Th.109.
- 22 For the above interpretation of "horizontal" and "vertical" see Rosán p86-9. But this does not mean that the horizontal does not descend like the vertical: both, if a distinction need be made, descend to plurality by becoming gradually dissimilar to the One. Dodds encountered many problems in his attempt to segregate the technical terms for each, eg. p.208-9, 282-3. For a most thorough examination of Proclus' terminology, and refutation of the separation into "horizontal" and "vertical" see A.C.Lloyd "Procession and Division" in "Soul and Being" etc id. esp. p30-1, 38-41; also see S.E.Gersh "From Iamblichus to Eriugena" p.150-1, in note 120 he strongly condemns such distinction as unnecessary and misleading, but cf. his earlier use of "vertical" and "horizontal" in his "Spiritual motion" p.120-1, in diff. context. The relative value of the x-y type of diagram (Dodds p.282, reproduced in Wallis p.150) is itself questionable for the above reasons, although ironically it may not have been too alien to Proclus himself: see A.Charles-Saget's uncovering of its similarity to a table of arithmetical progression derived from the "Intr.Arithmetica" of the Neopythagorean Nicomachus (Proclus seems to have written a Comm. on it and besides he occasionally thought that he was a reincarnation of Nicomachus, Marinus ch.28), "L' architecture du divin" op.cit. p.202-4. Nevertheless, in view of the problem of horiz. and vert., a better alternative is Lloyd's slanting descent, "Proc. and Div." id. p29.
- note 22 continued

(note 22 cont.) However I feel that a great deal more work is needed to address the difficulties arising from the imposition of a quantitative structure on such purely qualitative relations, eg. the paradox that according to all the aforementioned graphic representations, the mind of a rat qua mind would rank above the World Soul qua soul. Hence I have refrained from offering in this work a schema of my own, relying instead, in the Platonic fashion, on the imagination of the reader.

- 23 El.Th.40-51, 63, 64, 81. Also see Gersh "Spiritual motion" op.cit. p.128-135; J.Trouillard "La Mystagogie de Proclus" (1982) p.187-206; for an analysis of El.Th.63&64, L.Sweeney "Particip. and the structure of Being" in "Structure of Being" ed. R.Harris op.cit. esp. p144-9, I would opt for his diagram one. Also, J.Whittaker "The historical background of Proclus' doctrine of the authupostata" art.7 in "De Iamblique à Proclus" (1974) identified with the notion of self-causation.
- 24 Eg. El.Th. 9, 63, 64, In Parm col. 1026, Pl.Th.III 23-4 (Budé); also see J.Trouillard supra p.198-206; J.A.Coulter "The literary Microcosm" (1976) p.39-54, 60-8, 105-6. The "inseparable" participation is also denoted as "kath' hexin", In Tim. II 313,1-4, meaning in the form of "permanent possession". Cf. with In Tim.I 10,25-30, distinction between a "separable" soul and an "inseparable" nature, the one "participated" but the other "possessed" (echon).
- 25 As A.C.Lloyd rightly points out, "Procession and Division" op.cit. p29-30, in this theorem Proclus deals with the "return" rather with the "procession" and the acquisition of properties, nevertheless as Dodds states (El. of Th. p255) it also describes the causal path(s) for the latter, see Dodds refs and cf. quote 37 in I.B.4.

2. "ALL THINGS ARE IN EVERYTHING, BUT APPROPRIATELY"

"All things are in every-thing, but appropriately in each" (panta en pasin, all' oikeiōs en hekastō) is, as A.C. Lloyd accurately observes, "the golden rule of Neoplatonic metaphysics".¹ It is indeed the golden rule, for it exemplifies the syncretic tendency prevalent in Late Antiquity and Neoplatonism in particular. Blended in this rule are the ideas of universality (as eg., the concepts of "sympathy", "wholeness", "similarity", "unity") and specificity or individuality (as eg., "variety", "difference", and "particularity" in terms of "analogy" and "relation"). The first part of the rule "all things are in every-thing" refers to the inherent unity and sympathy of every entity with every other, by virtue of their common origin in the One ; whereas the second part "appropriately in each" refers to the particular niche occupied by each entity in the hierarchical procession from the One.

It is essential to appreciate that this 'theme' is central to Proclus' philosophy, it is his means for synthesizing in an "universal whole" the plurality and diversity of entities, qualities, types of existence, causes, effects and phenomena, while retaining their "particularity", their specific properties and relationships. It is also at the heart of his method of assigning analogous, corresponding - therefore interchangeable - names to the modes of existence and the "triads", as well as of his use of shifting emphasis in the description of their properties (see eg. I.B.4. also II.A.4.1.).

Which of the two parts is more important for Proclus, is difficult to ascertain, because the two are supposed to be complementary ; indeed even attempting to make such a judgement is probably contrary to the intention of the overall theme. Nevertheless, inasmuch as the second part has the role of a modifier on the first, and since the Unity is both the origin and goal of everything, then the "all things in everything" may be more important.

Among the many applications of the rule, there is one which is particularly noteworthy :

"All that subsists in any way, is either in a causal mode (kat' aitian) like a principle (archoeidōs), or in its proper state of existence (kath' huparxin), or in a participated mode (kata methexin) as an image (eikonikōs). For either we see the product in the producer (en tō paragonti to paragomenon), as pre-existing in its cause,...or we see the producer in the product (ie. the third case above)...or else we contemplate each thing in its own order, neither in its cause nor in its resultant" (9). And so, "All things are in everything, but appropriately in each...for if each thing may exist in a causal mode or in its proper state of existence or by participation, in the first term (en tō protō) the other two are as in a cause (kat' aitian), while in the intermediary term (mesō) the first exists by participation (kata methexin) and the third as a cause, and finally in the third term (tritō) its priors exist by participation" (10). E.R. Dodds submitted that this triadic formulation of the "all in everything, but appropriately" may be original to Proclus.² Another minor variation on this triad is "as in a cause" - "in essence" or "substantially" (kat' ousian) - "in participation" (see eg., Pl.Th. V 274-5 Portus)

Since Proclus gives about six main types of existence, being - life - intellect - soul - nature - body, their presence in the triadic formulation of "all is in everything, but appropriately" is frequently "bunched"; so, for example, intellect may be said to have life and being by participation whereas soul, nature and/or body as in a cause . In addition, some of these levels of existence may be omitted altogether, the most usual ones being "life" and "nature".

The One and Matter have a special status in relation to this arrangement. The One is said invariably to exist as a cause, transcending even its own existence. The unities-henads, but especially the self-constituted, so-called divine henads seem to share this transcendancy, as the participable members of Unity,

hence their appellation the "summit" (akrotēs) or the "flower"³ (anthos), viz. the causal mode in an emphatic sense (also see I.B.1). Matter seems to exist by participation only, as an image, lacking, in itself, even a proper level of existence of its own (the mass-matter type of existence seems to correspond to body plus matter ; also see I.B.8.5).

NOTES ON I.A.2

- 1 A.C.Lloyd "The Camb. Hist. of Later Greek & Early Med. Philos." p.307, in Part IV. Also see Dodds "El. of Th." p.254 and his addenda on p.346, and Wallis "Neoplatonism" p.33, 123-4; he calls the "all is in all" theme, "the principle of Correspondence" Proclus did not use it indiscriminately, stressing the "oikeiōs" part, viz. that of appropriate and characteristic mode of existence, as an essential control over the 'everything goes' part: hence, I prefer to call it the "appropriateness rule". Cf. Pl.Th.I 42,20-43,21 (Budé); In Tim.I 36,7; 43; II 26-28 and 43-5 (on Element theory); III 65 (on Celestial theory) and esp. In Tim.III 169, 171-5, where it appears as the variant "panta pantachou ana logon esti". J.A.Coulter gives a good account of how Proclus applied the "appropriateness rule" "The literary Microcosm" p.86-94.
As to the origins of this theme, both the "all is in all" and the "predominance" (kratein) of a specific quality may be found in Anaxagoras, cf. Arist. Phys.I ch.4, 187a-b & see J.Longrigg "The roots of things" Isis 67 (1976) p420-38, although its extension to the intelligibles according to Iamblichus, the systematizer of this rule in late Neoplatonism, is attributed to Numenius, the 2nd c. neoPythagorean; prob. this is the reason for Syrianus' citation of the "Pythagoreans", In Meta 82 as the originators of it.
- 2 E.R.Dodds' notes on prop.65 "El.of Th." p236; as with every element of Neoplatonic philosophy, Proclus is more systematic with formulating and applying it than the previous Neoplatonists. Also cf. In Tim. I 8,15-20.
The upshot of it is, that everything in the universe is a mode of existence, and that every (entity with a) characteristic property has many modes of existence, which can be reduced to broadly three states or sorts.
- 3 "akrotēs" generally denotes the "highest" in any particular grouping, for example the celestial bodies and the Element of Fire with respect to the physical world see Part II, and it carries a hierarchical value-connotation; but insofar as the "unity"-henad and esp. the divine kind is the "highest" attribute of all (counting from the "participant") it is the "akrotēs" of being eg. El.Th.201 cf. El.Th.146; In Alc.31,10.
"anthos" is very much a jargon term derived chiefly from the Chaldean Oracles; a good example is a ref. to the "unit-like flowers" (anthē henoeidē) which decorate the world, In Tim.III 118,26, almost a coded expr for the (celestial) henads. As part of a phytological imagery, seed-stalk-flower-fruit, III 296. For the "Chaldean" background and phraseology, E.de Places "Oracles Chaldaïques" (Budé 1971), and H.Lewy "Chaldean Oracles and Theurgy" (1956, 78).

3. SIMILARITY AND SYMPATHY

"And you will find, that all progressions and reversions are effected and completed on account of the cause of similarity. For everything which proceeds and everything which returns subsists by similarity to its producer" (11).

Similarity (homoiotēs) is, as it were, the binding principle of the hierarchy, because, as has been mentioned already in the chapter on the triadic motif, it is the similarity between entities, and particularly between producer and product, which makes the procession (and return) possible. With similarity the hierarchical chain is kept continuous and unified, like its source the One. "And there is one series and one indissoluble order...extending from on high the First-most Cause (prōtistēs aitiās)...For because it is One it is the supplier of union ; and because it the Good (see I.B.1.1) it constitutes things similar to it prior to such as are dissimilar. Thus all things are in continuity (sunecheian) with each other" (12). "But if they (the producer & the product) are altogether incompatible (asumbata), there will be no sympathy between effect and cause" (2). In other words, cause and effect would not "imply" each other, as in the triad in-a-causal-mode - substantially - by-participation or the triad cause - power - effect (see ch. 2 & 1, previously), and there would not be "causation".

Similarity can also be regarded as a measure of an entity's hierarchical proximity to the One, and therefore a measure of all the associated qualities, such as universality, wholeness, power, perfection, transcendence, etc. "Series extend from above as far as to the last of things (eschatōn)...but the procession is diminishing the similarity (homoiotēta elattousēs)" (13). "And all things aspire (epiētai) after their leading principles, and there is a token of the appropriate monad in everything, but in some it is more clear (tranesteron) and in others more obscure (amudroteron). Likewise, similarity subsists...in proportion to the procession" (14). The hierarchy proceeds by

diminishing similarity (cf. ch. 1. on the triad), diminishing both in relation to the One, and mutually between the member-entities.¹ So, for example, the unities-henads are most similar to the One and to each other, souls are less similar, while material bodies are least similar.

Not surprisingly, similarity has a vital role in maintaining the "sympathy" of the world. The famous concept of cosmic sympathy seems to have been formulated among the Stoicism around Posidonius' time (2nd c.BC), although supporting ideas may also be traced in the Platonic view of the cosmos as a whole living-being. But its relation to similarity, in Neoplatonism, is almost certainly due to Plotinus' development of sympathy.² With the late Neoplatonic ideas of "intermediaries" and individualised "powers", sympathy seems to have become also a more specific unifying principle between appropriate and suitably disposed entities, in addition to being a rather general, diffuse cohesive force. Furthermore, since such a universe was peopled by numberless "intermediaries", the (Aristotelian) requirement, that action is effected by contact could be "harmonised" into the theory, with "contact" taking on a much wider meaning.

So, for Proclus, sympathy and generally any type of influence, or power-to-affect, are essentially a contact-like action, insofar as their activity takes place in a plenum. Yet these contiguous "touchings" are not necessarily corporeal. Indeed in most cases, including the influence of the celestial bodies, the transmission of sympathy or any kind of power is effected via incorporeal immaterial entities, or channels. "Plenum" and "contact" have both material and immaterial, corporeal and incorporeal, and in general, physical and metaphysical connotations. Thus such a contact type of action may give the appearance of being an action at-a-distance, if the "intermediary" stages or agencies in the train of transmission - which are very likely to be undetectable by the physical senses, anyway - are ignored, and the only known, or

assumed, factors are the originative causal entity and its long-range effects.³

"For if the procession of beings is to be continuous (sunechēs), and no void (kenon) is to enter either in the incorporeals (asōmatois) or in the corporeals (sōmasin), it is necessary that everything which proceeds naturally, proceeds through similarity"(15). "Connexion (sunaphē) and participation (methexis) are indeed the communion (koinōnia) of the entities that are joined together (sunaptomenōn), and is the sympathy (sumpatheia) of the participants to the participated" (16). "For as the 'Timaeus' says (58D, cf. II.A.2) the heaven envelopes all the elements which are under it, so there is no void space. Just as the visible heaven is connective of all things that are under it, and is the cause of continuity (sunecheias aitios) and of sympathy - for the insertion (paremptōsis) of void interrupts this continuity, and the cancellation (anairesis) of the continuity cuts-through (diakoptei) the sympathy between bodies" (17).

This view of sympathy and similarity also provided the theoretical basis for an "active" kind of astrology and for theurgy, according to which the wise man may operate on and manipulate the various "sympathetic" powers, rather than just suffer their effects passively.

Proclus describes the function of "dissimilarity" (anomoiotēs) as follows : "Similarity proceeds by analogy to the intelligible limit (perati), but dissimilarity by analogy to the intelligible infinitude (apeiria)...The subsistence of dissimilarity is analogous to the prolific causes and to those that preside over plurality and division" (18). This confirms similarity's role as being analogous to the "defining" aspect of the One, and dissimilarity's as analogous to the One's infinite power (see I.B.1.1 & 2).

NOTES ON I.A.3

- 1 Eg. Pl.Th. III 6, 7, 12 (Budé).
There is also the marginally different "twofold similarity" (dittē homoiotēs): to each other, according to the degree of procession from the One, and to the direct producing causes Pl.Th. VI p352 (Portus).
Similarity as a cosmological principle derives from the very old and well established notion of "homoios" in Greek thought.
- 2 For "similarity" and "sympathy" in Plotinus, see Enn.IV,4,32, 38-45. Also cf. Iamblichus "De Mysteriis Liber" p.192 & 207 (Parthey) for "sumpatheia", "homoiotēs" and "epitēdeiotēs".
In Proclus' El.Th.28 (quote 2) Dodds explains "sumpathes" as "attuned" p.216 of his notes; "sumpatheia" seems to follow "similarity" in being both general and specific. Cf. In Tim.I 36. On the concept of cosmic sympathy, M.Pohlenz "Stoa" esp. I 230, 360, 391-2, and C.Reinhardt's "Kosmos und Sympathie"(1926) p170-209.
- 3 Whether the Neoplatonists originated, or anticipated, the concept of action at a distance is a vexed question.
For M.Jammer, "Concepts of Force" (1957) p.36ff, 148f, the sympathetic linking across the body of the universe was equivalent to action at a distance. S.Sambursky, "Conceptual developments in later Greek scientific thought" in "Scientific Change" ed. A.C.Crombie(1963) esp. p.61-4 & 78, maintained that thanks to their mystical philosophy, the Neoplatonists progressed further from the Stoic "sympathetic" field of force of the "pneuma" and originated the notion of action at a distance; however, G.E.L. Owen in his comment., p98-102, was critical of this claim, pointing out, that the non-corporeal aspects of "contact" and "touching", such as the psychological, had already been under debate among the Peripatetics and Stoics, and that it was these kind of arguments which were further developed by Plotinus and Iamblichus.
The wider issues of the notion of action at a distance are discussed in M.Hesse's art. "Action at a distance", "Concept of Matter in modern philosophy" (1963) ed. E.McMullin, p.119-37, where she deals with the problems of defining the concept; there is also a mention of the extra-sensory kind of phenomena in relation to action at a distance, which may, but not necessarily, be relevant to Neoplatonism.-
The long range action of the Neoplatonic "sympathy" and causality does share some of the features of action at a distance, as outlined by M.Hesse, esp. that of continuous action; but the aspects of action through a plenum of media, and the affecting of suitable entities make it more like action transmitted (or emanated) through a field.
An appropriate compromise is, perhaps, A.E.Taylor's "contact at a distance", "A Comm. on Plato's Timaeus" p278, which he employed to describe Plato's theory of vision and light (Tim.45C).

SECTION B.. THE MODES OF EXISTENCE

Introduction.

A complete list of Proclus' modes of existence, the "hypostases", can be found mainly in the "Platonic Theology". In the "Elements of Theology" they are scattered in various parts of the text, and therefore a reconstitution, as it were, is necessary. Yet there is an advantage in such reconstitution over the comprehensive account of the "Platonic Theology", inasmuch as that the hypostasis of Nature is included more or less explicitly (for the problem see I.B.6).

A useful synopsis of the hierarchical arrangement of the hypostases and their associated properties may be found in Pl.Th. I 63-73 (Budé edition) and in III 20-26. The first seems to be based on a hierarchy of moved and moving entities, and therefore is similar to El.Th. prop.20. The second is based on the more familiar attributes of "being", "intellect", "soul" etc. Of the two, the second is perhaps broader than the first, since motion or the lack of it in terms of "unchangeability" were usually among the properties attributed to soul and intellect respectively, for example.

In Pl.Th. III 20-26 (Budé), Proclus commences with the last mode of existence, hierarchically speaking, and continues in an ascending order; ie., the emphasis is on the "return" (see I.A.1).

"Of all types of being the very last (eschaton) is the corporeal (sōmatikon)...For no body has either its own means of existence (ou authupostatōn) or its own means of coming-to-be (oude autogenēs)" ... "From where, then, comes the existence (to einai) of bodies, and what does immediately (prosechōs) procure them by nature (pephuken) with being? Is it not as we say the cause primarily of existence of bodies, that which by being present renders the nature of a body (sōmatos phusin) more perfect and complete (teleiōteran) than of its kindred bodies (homogenōn : ie. the ones which do not have it)...This is soul (psuchēs); for we say that

the animated bodies are more perfect than the inanimate (empsycha..
apsucha : cf. Arist. de gen. anim. II 731^b29). Soul therefore is
primarily over and above bodies (sōmatōn epekeina), and it must be
admitted that all the heaven and everything corporeal (sōmatoeides)
is a vehicle of soul. Hence, there are two orders of being, as
we have shown, one is of the body (sōmatikē), the other which is
above it (huper) is of the soul (psuchikē)"...

"Just as perfect is the body which partakes of soul, likewise
perfect (teleia) is the soul which participates in intellect (nou).
Not everything partakes of a soul which is capable of rational
life, however, intellect and intellectual irradiation (noeras
ellampseōs) is participated even by those which have just a
certain amount of cognition (gnōseōs hestinosoun). Soul's
activity (energein) is in Time, but the intellect's in Eternity...
every intellect is always perfect (aei teleios)...therefore the
class of the intellect (noeron genos) is in its existence over
and above that of the soul"...

"But is the intellect the first-most of the kinds of being ? No,
for prior to it is the breadth and plane of life (zōēs platos).
For the soul is indeed self-living (autozōs), supplying itself
with life, and the intellect is the best, most perfect, and as we
have already said, eternal life...it is necessary therefore to
exist life-itself (autozōēn)...If the beings which are capable of
cognition participate in intellect, whereas such beings which are
without even a share (amoira) in the faculty of cognition partake
of life - for we say that plants live (cf. Plato Tim. 77B) -
it is certainly necessary that life should be arranged over and
above the intellect, since it is the cause of a greater number of
effects (pleionōn aitian)...than the intellect".

"What then ?...is to-live the same as to-be ? But this is impossible
...for everything which partakes of being should also partake of
life...but there are many beings which are without a share in life,
although all living beings have both essence and being (to on ;
also transl. real-existence). Therefore the real-existence (viz.
being itself) was given subsistence prior to the first-most life ;
for that which is more universal (holikōteron) and the cause of

a greater number is closer to the One (enguterō tou henos ; cf. quote 3 in I.A.1)" (19).

"The One gives subsistence to the unities-henads of the class of real-existence (tōn ontōn), prior to real-existence itself"...
"And the henads of the beings are given subsistence by the unparticipated (amethektou) and the transcendent from all, Unity (tōn holōn exērēmenēs henados)" (20).

The complete list of the "hypostases", including Nature as a separate order, is as follows :

1. Unity (henas) The origin (and goal) of the universe
2. Being (on, ousia) The existence and the model of the universe
3. Life (zōē) The intelligible heavens
4. Intellect (nous) The crafting, the creation of the universe
5. Soul (psuchē) The principle of motion
6. Nature (phusis) Physical existence
7. Body (sōma) The visible heavens, and the corporeal world

Proclus frequently eliminates or absorbs Life and/or Nature in an adjacent hypostasis, according to his customary use of shorthand, and shifting of emphasis in the description of properties (cf. I.A.2; also see I.B.3 & 6). Matter is generally the substrate, although as mass-matter it is the determinant factor of sublunary existence (see eg. I.B.8.5, II.A.6).

NOTE ON SECTION B. Introduction.

The arrangement of the levels of existence in an ascending or descending order is not necessarily the best way of representing the hierarchy.

The linear, vertical arrangement emphasizes 'par excellence' the ranking in terms of priority, superiority, and metaphysical or metaphorical "loftiness" and "sublimity". Indeed, such imagery and phraseology abounds in Proclus' writings (see quote 19, and the quotes in ch. I.A.1 and 8.5.2 & 3). But it also stresses the separation and distance between the sensibles and the intelligibles and the One (which is correct, nevertheless). Another type of arrangement is by concentric circles (or spheres). According to one of the two possible options, see Rosan, op.cit. p.99-117, the One is at the circumference of the whole schema, and Body occupies the innermost circle - that with the shortest radius. It represents the procession from more universal to more particular modes, the former "encompassing" the latter, and it also demonstrates that the One (or the Limit, or Being, depending on the fine variants thereof) is the "boundary" of the universe. In effect, it is an extended version of the familiar geocentric arrangement of the spheres of the 4 Elements and the celestial bodies, with the "spheres" of the intelligibles enclosing those of the sensibles. It became, in a Christian context, very popular in the Middle Ages and in the Renaissance. There are many examples of it in Proclus, see eg. In Tim. II 281, 284, 286, El.Th. 60, 150. Cf. Diagram three of L.Sweeney's article "Participation and the Structure of Being" in the "Structure of Being" ed. R.B.Harris, on p.151. According to the other, the One is at the centre of the system of concentric circles, with the other modes of existence radiating away, as it were, from the centre and occupying successively larger circles. Body defines the circumference. Cf. F.Novotny "The posthumous life of Plato" (1966), diagram on p.154, on Plotinus' hypostases. It represents the emanatory character of procession, expanding from the more unified to the more separated modes, Body being, appropriately for Proclus' theory of Space, the ultimate and spatial separation. However, it also demonstrates, that whereas body is the outermost "shell", unity is the innermost essence of existence, an insight into Neoplatonic philosophy not clearly illustrated by the other representations of the hierarchy (cf. eg. Chald.Phil.IV, p211). The similes employed are, firstly, of the One as the Sun (ex. Plotinus, eg. Enn.VI 9,7-8) and secondly, of the "monē" as the centre of a circle, whose radius is analogous to the "prohodos".

1. UNITY AND FIRST PRINCIPLES

1.1 THE ONE

The One is the designated single, first cause of the universe. The first cause is by necessity "one", otherwise there would be infinite regress. "All things that exist proceed from a single first cause (mias, prōtēs aítias)...or else there will be regress to infinity (ep' apeiron anodos), cause lying behind cause, so that the positing of prior causes will never cease...there is a first cause of all existing things (tōn ontōn) from which they proceed severally (hekasta) as offshoots from a root (ek rhizēs), some near to it, and others more remote; for that there is not more than one such first principle has already been established, inasmuch as the subsistence of plurality is posterior to the one"(21).

The One imparts, naturally, unity (hen, henas, hēnomenon) to the Universe, since all entities exist because of the One, as "effects" of that First cause.¹ In this sense, the One represents both the primal cosmic sympathy, and the "limit" of the cosmos, since its absence would entail infinite regresses and infinite quantities in every direction.

Furthermore, the One is also the designated goal of everything in the universe, and is therefore their "good" (agathon).

"For if it belongs to the good to conserve and preserve (sōstikon) all that exists - on account of which it is originally the desirable object (epheton) of all - and if that which conserves and holds together (sunektikon) the substance of each thing is unity (hen) - since by unity everything is conserved in substance, but scattering (skedasmos) alters the substance of each thing -, then the good, wherever it is present, makes such a thing one and holds its substance together by virtue of this union (enōsin). But if union is in itself good, and all good tends to create unity, then the Good unqualified (haplōs) and the One unqualified are identically the same...Goodness, therefore, is union, and union goodness,

the Good is one, and the One is primarily good" (22).

Although the conception of the "good" as an ultimate principle can be traced to the Aristotelian 'summum bonum', and Plato, the explicit identification of the Good with the One is characteristically Neoplatonic, and may be found, for example, in Plotinus.² Essentially, it facilitated the intimate linking of ethics with the general Neoplatonic cosmological system, so that, roughly put, each mode or grade of existence could count a set of appropriate ethical properties among its overall number of characteristic properties. Within the process of remaining - procession - return, the good in its appropriate form is invariably the "remaining" element to which things must "return", moving (but not necessarily in spatio-temporal terms) from states of division and/or privation to states which are more unified and "whole". It is not surprising therefore, that the "return" to the good, unified and whole is the theoretical basis of the Neoplatonic view of religion, even in its theurgic form (cf. I.B.8.5.3).

If the One is both the First cause and the Good of the universe, then the identification with the notion of one God is virtually inevitable. "Now, that the One is God (to hen theos) follows from its identity with the Good; for the Good is identically the same with God - for such thing which is over and above all things, and is desired (epietai) by all, this is God (theos touto), and that which is the 'whence' (aph'hou) and 'whither' (pros ho) of all things, this is the Good" (23). This abstract, impersonal One God sets the tone, as it were, for the concept of divinity in Proclus' Neoplatonic philosophy.³ "Divinity" is effectively an appellation for a certain essential principle, whose properties and functions are such as to earn the title "God".

According to a strict definition of the One's properties, the essence of the One in itself is placed above and beyond everything; it is beyond any kind of attribute or definition.⁴ This follows, or rather it is ontologically justified, partly from ranking

"real-existence" or "being" below "unity", and the identification of the existence of the universe with that, relatively, lower mode (see I.B.2), but chiefly from the rule that the prime cause, viz. the "unparticipated" entity, should be above and beyond the ranks which are subject to participation. The One itself being the exemplar is the "unparticipated" par excellence, and is the Ineffable (arrhēton), Unknowable (agnōston), and Transcendental (exērēmenon).⁵

The designation of the One as an entirely transcendental entity accorded with many theologies of the period which required a God-above-all to be beyond the "materiality" of the world, namely the dualistically based or influenced belief systems. In this respect, there is a marked similarity with the Gnostic notions of a remote, good God, and "King of Light".⁶

Philosophically, such a First cause could overcome the Aristotelian problem of the patient reacting upon the agent. But the role of a completely transcendent 'primum mobile' would seem to be in conflict with its capacity as a causal entity. The solution to this was the introduction of (i) the pair of first principles Limit (peras) and Unlimited (apeiria), which essentially exteriorize the causal ability of a "hidden" One, and (ii) the series of participated members of Unity, namely the famous "henads" (henades).

These entities, in effect, bridge the chasm between the totally inscrutable First cause and the real-existent Universe, which is in agreement with the method of introducing "intermediary", bridging entities between dissimilars.

Limit and Unlimited represent respectively the "delimiting" nature, and the "infinitely" powerful capability of the One; their successive "mixing" yields the various forms of existence. The henads unify and join the universe to the One, since they are participable and knowable.

Union with the One invariably involved the state of "illumination", based on the Neoplatonic concept that the One can be appreciated by "analogy" to light.⁷ "The light (phōs) which proceeds from the Good is a unifier (henopoion) of intellect and beings...the light which is in the intelligibles illuminates them in the same manner as the sun-like (hēlioēides: see Plato Rep.VI 509A) light which is in the visibles (horatōn)...all the intelligibles become like-the-Good (agathoeidē: also Rep.VI 509A) through the participation in the light, and through this light every being is most similar (homoiotaton) to the Good. It makes, therefore, no difference to speak of this light and of the One - for this light is connective and unifier (sundetikon, henopoion) of the intelligibles since it derives its subsistence from the One (tou henos huphistamenon)" (24).

So, the One can be thought of as expressing its power by emanating light, which acquires the appropriate nature of each subsequent mode of existence, ending with the solar light; the light-procession is thus identifiable with the procession from the One to plurality.

NOTES ON I.B.1.1

- 1 Eg. El.Th. 1-5, 11
- 2 Plotinus Enn.VI,7,15-42 and VI,9.
Effectively it is the merging of the Socratic and the Parmenidean elements in Platonism, see Proclus Pl.Th.II ch.7 & 6.
That the Final cause is identical with the First cause, see eg. El.Th. 33, 146. It is linked to the "returning" to the "remaining" phase. That the transcendental Final cause, El.Th.8 is the transcend. Efficient cause, El.Th.11, and identified with the One, El.Th.12.
- 3 But see also "The Hymn to God", in "Philosophia Chaldaica" of Proclus, A.Jahn p.62-77; text and Engl. trans. in Rosan, works of Proclus no.39. It had originally been attributed to Gregory of Nazianzus, but as Jahn and esp. Rosan show, it most probably is one of Proclus' hymns.
On the Neoplatonic view of God, cf. A.H.Armstrong "The apprehension of Divinity in the Self and Cosmos in Plotinus" in "The significance of Neoplatonism" (1976) ed.R.B.Harris, particularly his remarks p.187-190.
The notion of the One as the God above any personification prob. derives from Pythagoreanism or neoPythagoreanism, eg. Nicomachus, see J.Dillon "The Middle Platonists".
- 4 The One transcends even its own "hypostasis", eg. In Tim. I 256,4 also see J.N.Deck "The One, or God, is not properly a Hypostasis" in "Structure of Being" ed.R.B.Harris, p.34-9.
The One can only be approached, philosophically, by "negation" (apophasis), the "negative" theology, or by "analogy" (analogia) Pl.Th. II ch.5, ch.10-12 (negation), ch.7-9 (analogy); also see Rosan pl22-6.
- 5 Eg. El.Th.123, 162; In Tim.I 3,30; In Alc.181,18; Pl.Th.II ch.6 They stem from the apophatic approach to God. See also Dodds on the Unknown God in Neoplatonism, Appx.I in the "El.of Th." p310-3; cf.J.M.Rist "Mysticism and Transcendence in later Neoplatonism" Hermes 92 (1964) p213-25; and ref. in Lewy.
- 6 See H.Jonas "The Gnostic religion", eg., p.42-44, 57-8, 288-9. for the "King of Light", E.S.Drower "The Secret Adam" (1960) on Mandaeans, p.56 ff. There are also parallels in Hermeticism. For the One as "the first King" see intro. to vol.II of Pl.Th. by Saffrey and Westerink, p.xxxv-xxxvii, and II ch.8 & 9.
- 7 For the "analogy" of solar light in Plato Rep.VI, esp.507. See Proclus Pl.Th. ch.7 and ch.4, p.32-4 (Budé). Also see Gersh "Spiritual Motion" op.cit. on the simile of light, p.90-3.

1.2 LIMIT AND THE UNLIMITED

The pair Limit (peras) and Unlimited (apeiria), also translated limit and infinite, determinative and indeterminate,¹ make their appearance as primary principles in Proclus' scheme somewhere between the One and Being.

"All that is really existent (ontōs on) is composed of limit and infinite (apeirou). For if it is to have unlimited power, it is obviously infinite, and in this way it is given subsistence by the infinite. But if it is to be indivisible (ameres) and unitary, it should participate in limit; for what participates in unity (henos) is finite ". ... And, "Prior to all that is composed of limit and infinitude there exist by themselves (kath' hauta) the first Limit (prōton peras) and the first Unlimited (prōtē apeiria)" (25).

"The Limit and the Infinite of the beings manifest (ekphainei) that unknowable (agnōston) and unparticipated (amethekton) cause (viz. the One), the Limit being the cause of the stable (monimou), uniform (henoeidous) divinity, which holds things together (sunektikēs), and the Infinite being the originating cause (prokatarchon) of the series which proceeds to all things and is capable of multiplication (plēthuesthai dunamenēs), and in general of all the generative order (gennētikēs diakosmēseos). For all union and wholeness (holotēs), and the communion of beings and all divine measures (theia metra) depend (exērtētai) on the primary Limit, whereas all division (diairesis), prolific creation and the procession into plurality are given subsistence from this most principal Infinitude" (26).

This pair of first principles manifest or "reveal unto light"² (ekphainei) the substance of the One, the unifying element in things, and the power of the One, the unlimited power of proceeding forth and multiplying: Proclus avoids infinite regression by pointing out that "power" is "infinite" in quality not in size

or number.

Being a pair of first principles had its own added significance: Firstly, it accorded with the Pythagorean number-symbolism which associated the dyad with multiplicity,³ and secondly, in view of the terms "father" and "mother" in the series of divine henads, this pair seems to represent the Father - Mother God, whose union is the universe, and which manifests the properties of the Ineffable One.

L.J. Rosán seems to suggest ("The philosophy of Proclus" p.126-7), that both elements of the pair are on the same level immediately "below" the One and "prior" to Being. This indeed agrees with Proclus, one minor problem^{however} arises from the statement in El.Th.prop. 92 : "Infinitude is between the First principle and Being", which appears to imply that the first Infinitude alone is ranked below the One. But if Limit manifests the "substance" of the One it must be relatively superior or prior to the Unlimited which manifests the "power", inasmuch as "power" is the second term in the triad substance - power - activity (or cause - power - effect), and any principle of "unity" must be prior to plurality: strictly, the Unlimited is relatively "lower" than Limit.

A similar kind of problem is the status of the henads with respect to Limit - Unlimited together, since the henads, in themselves, are also hierarchically between the Unparticipated One and Being. Rosán states (ibid.) that they are on the same hypostasis, presumably because they all are exteriorised properties of the One. Yet throughout the "Platonic Theology" Proclus refers to the One as the direct cause of the henads, and only refers to Limit - Unlimited when he is about to embark on the discussion of their first mixture,⁴ Being; in other words, he seems to give priority to the "horizontal" relationship over the "vertical", which would normally mean the hierarchical superiority of the former over the latter. But perhaps this is merely an example of Proclus' use of a shift in emphasis as "appropriate" in the description of entities. Thus, (i) he emphasizes

the relation between the One and the henads when the subject-matter centres on the diversity of Unity, viz., that the henads are class members of the One, but (ii) he emphasizes the relation between the One and other modes of existence, ie. in the discussion about Being, when the subject-matter centres on substantial change. So, essentially there should be no problem.

However, in El.Th. 159 Proclus himself seems to provide the solution, thus: "Every order of divinities (the self-constituted henads, see next chapt.) is derived from the two first principles Limit and Unlimited...every order must proceed from both, because the communications (metadoseis) of the first causes extend through all the secondary (deuterōn) ranks". According to this statement the henads are products of Limit and the Unlimited, which concurs with the original intention that they do the actual "causing" of the One. Therefore in strict hierarchical terms the henads are "inferior" to⁵ Limit - Unlimited, which in turn confirms that talking about "horizontal" and "vertical" hierarchies in Proclus may be misleading.

Proclus reinforces further the concept of "limit" and "infinitude" as a series of principal properties (Limit and Infinitude being the "monads" thereof) by giving lists of their corresponding functions in the various cosmological modes.⁶

Eternity (see I.B.2)	has limit	by being the measure of intelligibles
	has infin.	by being an unceasing power.
Intellect (I.B.4)	has limit	by creating according to the Model
	has infin.	in virtue of the power to create.
Soul	has limit	by being the measure of periodic motion
	has infin.	by being in a perpetual state of motion.(as the principle of motion).
The celestial bodies	have limit	in their order and definite periods
	have infin.	in the variety of planetary motion and extent of their influence.

Generation as a whole has limit in the finiteness of the forms
has infin. in the complexity and constant
change.

Every product of Nature is limit. by its form (eidos)
is infin. in its matter (hulēn).

Formless mass-matter has limit by being a definite quantity
has infin. in being capable of indefinite
division.

Thus, as Proclus points out, "limit" corresponds predominantly to the "formal" cause, whereas "infinite" to the "material" cause, although for him these correspondences are only reductions of "limit" and "unlimited" insofar as they do not adequately encompass the full range of meanings and attributes of "limit" and "unlimited".

There seems to be an omission in defining only the Limit and the Unlimited as the exteriorized properties of the One: If they correspond, respectively, to the "remaining" and the "proceeding" elements, then the "returning" appears to be without a first principle at this level.

Rosán suggests (p. 128) that "Providence" (pronoia) is this third "returning" principle, co-existent with the other two. This is certainly justified by the appearance of "providence" in tandem with "unity" and "power" - "infinity" in the discussion on the henads, which implies the existence of all these three as "monads" prior to the henads, ie. there must be Limit, Unlimited and Providence. Furthermore, Proclus' definition of "activity" (energeia) is associated with the "returning" function of the "intellect" (nous): "Where should an activity prior to the Intellect be found, if not among those which are above Substance? And providence, as its name ^{indicates} (etymological interpretation of pro noia), is an activity prior to Intellect (pro nou)...the gods exercise providence towards all things, filling all with a good which is prior to Intellect" (27).

Rosán also notes (p. 103), that such definition of providence is doubly appropriate, since God by the very act of producing the universe (providence as activity) exercises fore-thought (providence prior to nous) towards it, protects it and cares for its welfare (providence in the more common sense). This is another aspect of the deliberate fusion of ethics with the Neoplatonic cosmology in the effort to systematise explanation.

NOTES ON I.B.1.2

- 1 Eg. J.Trouillard "La Mystagogie de Proclus" p.243-6; and ref. in note 2, below.
- 2 For the relation of the pair of principles to the One, and general background, see Dodds note on p.246-7; A.C.Lloyd's remarks, "Procession and Division" in Soul and the structure of Being etc., op.cit., esp. p.19-21; also Wallis "Neoplatonism" p.148; with particular ref. to the "manifesting" role of the Limit and the Unlimited, see Pl.Th.II 32, cf. In Tim.I 384 and A.J.Festugière's note 2 on p.248 of vol.II of his trans. of In Tim.
- 3 Regarding the Pythagorean symbolism and background, and a penetrating examination of the material in Syrianus and Proclus, see A.D.R.Sheppard "Monad and Dyad as cosmic principles in Syrianus" in Soul and the structure of Being etc op.cit. p.1-14. In Proclus eg. In Tim.I 130-2; I 174. For the "father" and "mother" divinity(ies) see Pl.Th.I ch.28, in relation to Limit and Unlimited.
- 4 One and henads, eg. Pl.Th.III ch.1-4, 7; El.Th.6, 21(Cor.); Limit-Unlimited and Being, Pl.Th.III ch.8, 9-11; El.Th.89, 90-93; and see A.D.R.Sheppard op.cit p.11, as she points out, in the El.Th. the discussion about the divine henads, the "gods" in Pl.Th. commences with prop.113, after the discussion on the pair.
- 5 El.Th.159 certainly seems to have been a stumbling-block for many, from the 12th c. Byzantine, Nicolaus of Methone and including Dodds, see El.of Th. p.281. As A.Sheppard op.cit. explains, p.11-2, the problem is not only why Proclus subordinates the henads to the pair of Limit-Unlimited, but also, why he retains the pair and gives it such an important cosmogonical role, when the henads alone seem to fill adequately the gap between the One and the Being of the universe. My suggestion is, that Proclus had at least two good uses for the pair of First Principles: firstly, they could be made to fit the triadic scheme for causation, and secondly, they could explain the differentiation among the divine henads - gods. According to the first, the pair together with Providence as a third First Principle, are the One exteriorized, Limit is Its hyparxis, Infinity Its power, and Providence Its activity; thus they provide the basic pattern for the enneadic structure of Being. According to the other, the pair, again together with Providence, ensure that the divine henads can have an individual, characteristic property, an idiotēs; this does not mean that the godly unities are "contaminated by duality"- besides, it is more like a trinity - simply (eg. El.Th.159, 151-3), some manifest more of the determining, others of the infinite, and others of the providential aspect.(of the One).
- 6 A composite list from In Parm.1119-23, and Pl.Th.III 33-4; also cf. In Tim. 384-6, for "form" and "matter".

1.3 THE HENADS

Literally "unities" (henades), they are the participated class members of the One.

The henads are distinguished into two main groups, the ones which are self-constituted and the ones which are not (see the "triadic motif"). Of the two, the self-constituted alone exhibit the attributes associated with the One, such as divinity, whereas the others are simply "irradiations" and "images".

Proclus summarizes the status of each, thus:

"The latter (ie. the irradiations) are upon such a level that they belong to their participants - for being incomplete (ateleis) they need a substrate for their existence. The former (ie. the self-complete) make their participants belong to them - for being complete (teleiai) they fill (plērousi) the participants with themselves...and they have no need of inferiors for their subsistence...From this is apparent that some of the henads proceed self-complete (autoteleis) from the One, while others are simply irradiated states of unity (ellampseis henōseōn)...And so not every unity is a divinity, but only the self-complete unity" (28). "For if there are two sorts of henads, as it has been shown above, the one consisting of self-complete henads and the other of irradiations from them, and the divine terms are those which are akin and of the same nature (sungēnēs, homophuēs) to the One and Good, then the gods are self-complete henads" (29).

So, Proclus distinguishes between the mere state of unity which every-thing has by virtue of existing, even a stone, and the self-complete and self-determined unity which only the so-called divine entities have. Yet, insofar as the mere states of unity are irradiations from the self-constituted, then everything has a spark of divinity, inherently.¹

This result led to the principle of "divine allotment" (theōn klēros)²

that each thing bears the sign of the appropriate divinity, which in reference to the celestial objects - the lowest order with divine henads - provided a theoretical basis for astrology.

Furthermore, inasmuch as the divine henad in itself is the "summit" (akron) and "flower" (anthos), the inner-most essence of all the attributes which partake of it (the henad contains in a unified fashion being, life, intellect etc.), all grades of correlation such as intellect-soul, soul-body, may be referred to a causal relation either between the participants and irradiations of the same divine henad, or between the participants and irradiations of different, but appropriately related, divine henads.³

The henads, and especially the self-constituted ones, are said to be more closely bonded to each other than any other series, for example intellects or bodies, since qua unities they are in a unio-ally unified state with the One and each other.⁴

Consequently, there seems to be an internal conflict between the status of the divine henads as aspects and representatives of the One in the universe, and as independent self-determined entities. But this was not seen as a problem at all, on the contrary, it accounted for unity in diversity with respect to divine nature. Employing the method of shifting emphasis, from the One's point of view the henads are its aspects and are united with it. However, from the point of view of the entities within the universe and especially physical beings, such as us humans, the divine henads - or rather the entities predicated with a divine henad - are the various individualistic gods. This was of course tailor-made for the syncretic reconciliation of the many non-christian panthea, but it also afforded a philosophic, abstracted explanation of the nature of divinity.⁵

In reference to the participant attribute-entities of the henads Proclus assigns a one-to-one relationship with "substance" or "being", the immediately "lower" mode of existence.⁶ As E.R. Dodds

observed (Proclus' The Elements of Theology p.271), this seems to betray the Neo-Pythagorean origins of the concept of the henads, where they represented the "limit" element of the "forms" (see I.B.2).

The divine henads are participated by appropriate kinds of real-existence, life, intellect, soul, and body, in the case of the celestial bodies, which (intellect, soul or body etc) are not divine in themselves, but are "divinized" (ektheoumena) by partaking of the divine quality of the henad itself. Other entities are characterised and partake of an "irradiation" henad; and so every thing that exists has its appropriate "unity" which defines it.⁷

Returning to the independent, divine henads, they are said to have both the "will" or volition (boulēsis) and the "overflowing" power (periousia dunameōs) for action,⁸ obvious corollaries of their self-determined and self-complete status. Such action is essentially the transmission and sharing-out (metadōsis) of "goodness" (agathotēs), the divine henad's very substance, so it is primarily the exercise of providence (pronoia). Nevertheless, the causal power may extend to all fields, in the appropriate mode, including the power to create (as in the Demiurge), and the seminal capacity for self-determined motion (as in the celestial bodies).

The independent henads were by no means conceived as clones of one single type, despite their unified substance. Each is an individual manifesting an appropriate character derived from their common origin in the One's Limit and Infinite. So, according to Proclus, some have predominantly the element of limit, others that of infinitude, while others have a "returning" feature (see previous chapt. limit, unlimited and providence).⁹ This specialisation confirms that they do not originate in the absolutely homogeneous One itself.

The divine henads which have the limit predominating are said to preside over the property of "unity" and "substantive existence".

According to Proclus, they constitute the "father" (patrikos) series of divinities, which from the level of Intellect 'downwards' they have the more specific function of "creator" (dēmiourgikon), insofar as they bestow "form" (eidopoia) on composite things. One grouping of them is also known as the "solar" (hēliakos) series.

The divine henads which have the infinite predominating are said to preside over the property of "unceasing" (to anekleipton) capacity and procession (prohodos). They manifest especially the multiplying and continuous characteristic of "power", and in Proclus' jargon, they constitute the "mother" (mēteres) series of divinities, also called the "generative" (gennētikos) and the "prolific" (gonimos), whose more specific function is to be the "life-giving" (zōogonos) causes (eg. the entitized power of the Intellect, see I.B.4).

Proclus also defines the divine henads which are said to preside over the "perfecting" (teleiōtikos, telesourgos) quality. They take care of the "return", which is, as mentioned in the previous chapter, associated with providence. The more specific form of this series is the "elevating" (anagōgos), viz. the ones which "uplift the soul".

He also defines the "guardian" (phrouretikon) series, whose more specific role is to "purify" (kathartikos) the divine quality from extraneous elements, particularly materiality, and to "liberate" (exairein, apoluein) it from such involvement. The "guardian" series is introduced in Intellect; from this level 'downwards' there seems to be a need to protect and conserve the immutable nature of entities with divine henad, as well as maintaining their distinct identity. To this series seem to belong the so-called "satellites" of the celestial bodies (see II.B.5; phrouros doruphoros, meaning attendant bodyguard).

The orders of self-constituted henads, which correspond to and are characteristic of the main cosmological modes of existence, are as follows :¹⁰

The intelligible (noētos), also called hidden (kruptos), referring to Being.

The intelligible and intellectual (noētos kai noēros), referring to Life.

The intellectual (noēros), referring to Intellect.

The leading or directive (hēgemonikos), ranking above-the-mundane world, hence called hypercosmic (huperkosmios), referring to Soul.

The liberated (apolutos) order, ranking both above and in the mundane world (hama huperkosmios kai enkosmios), which most probably refers to Nature.

The encosmic (enkosmios), viz. in the mundane world, referring to the celestial objects.

NOTES ON I.B.1.3

- 1 Eg. El.Th.144, 140; In Tim.I 209-10; and cf. El.Th.117
- 2 Eg. In Tim.I 135-42; In Rep.II 299.
- 3 Thus everything is part of the appropriate divine series, eg. El.Th.139-145; In Tim.I 210,17-25, In Tim.I 444,20-30, In Tim.II 201,25-9; also In Rep.II 296,5-13; and Hier.Art, esp. 151,14-23, 150,22-3.
- 4 Cf. Pl.Th.III 10-2; El.Th.118.
- 5 For the doctrine of the "henads" and its place in Neoplatonic thought see Saffrey's and Westerink's intro. to vol.III of the Pl.Th., esp. p.ix-xvii, li-lxxvii. Dodds had originally maintained that the doctrine could be traced to Syrianus (p257-60) although in the addenda and corrig. of the second edition, p346, he observed that there were difficulties and the doctrine must be earlier. J.Dillon, "Iamblichus Chalcidensis" (1973) in his praiseworthy examination of the difficulty, appedx.B p.412-6, 'stirred up the waters' by concluding that Iamblichus was the originator. Saffrey and Westerink retain the doctrine of henads within the Athenian School, with Syrianus in particular. However, it is a truism that only Proclus fully developed and established it in Neoplatonism, and in that respect it is his. For the religious syncretic movements of the period, cf. F.Dunand and P.Leveque "Les syncretismes dans les religions de l'antique" (1978).
- 6 One-to-one relationship with "being", El.Th.135-8, cf.117; the divine henads are finite in number, El.Th.149: both confirm that the unity "henad" is the potential and potent aspect of existence, and being the actual.
- 7 Each "god", like every individual in Proclus' system, is a bundle of qualities. The "henad" or unity is one of these qualities, but since it is the most potent and essential of all qualities (and according to the "realist" metaphysics), it is the quality which characterizes the entity as a whole; hence by shorthand "divine henad" is equiv. to the god as a whole. By similar use of shorthand "henad" may stand for "divine henad". A "god" will have also "being", but may have properly (as opposed to "causally") "life", "soul", "body" etc. depending on which mode of existence it has a "foothold". Cf. A.C.Lloyd, "Procession and Division" op.cit. p.34-8. See El.Th.129, 117.
- 8 El.Th.120, 121.
- 9 For the "father", "mother", "elevating" etc. classification see El.Th.159, 151-8. Some, such as the anagogic have also theurgical connotations, see Lewy op.cit. ch.iii.
- 10 See El.Th.162-5; cf. Pl.Th.III 26-8. List compiled Pl.Th.III-VI.

2. BEING, SUBSTANCE

This is the essential property of to-be or "substantive existence", and is therefore, in Proclus' terminology, "participated" by all that have actual, not just potential, existence, viz. "being". In cosmogonical terms, Being (to on) is the first mode of existence to proceed from the One's Limit and Unlimited (excluding the henads themselves), is very like it, and is the most universal attribute (again, bar unity).

"Being is above and beyond both the Intellect (nous) and Life (zoēs), since next to the One is the most universal cause, it must be the highest entity (akrotaton)...And prior to it there is no other principle save the One...Being, as composite of limit and infinite, is a unitary manifold (plēthos heniaion)...there is nothing prior to Substance (tēs ousias) unless it be supra-existent (huperousion; ie. transcendent)...immediately above and beyond Being is the not-Being (to mē on) which is superior to Being and is Unity (hen)" (30).

The above quote clarifies Being's position as the first actuality, the Universe as pure existence - hence in the triadic terminology "x is in substance/essence (kat' ousian)" (see I.A.2). The One, and the henads, are "causally" (kat' aitian) only: in other words, the transcendent state of unity in itself is like a state of potential existence or not-being. "That which as yet is not (oupō on), but exists only potentially (dunamei on), has already by its own nature a unity (hen estin kata tēn heautou phusin); and that which is after this level is actual existence (energeia on)"(31).

The One is therefore purely power, a causative force, not a "thing"¹ per se, whereas Being is purely substance, real existence unqualified.

In the "Platonic Theology" Bk.III, Proclus specifies 3 triads in describing the "monad" of Being:

One triad for its substance proper, "being/substance itself"

(autoon, autoousias), presiding over the "abiding" element;

one triad for its power, the "intelligible life" (noētē zōē),

presiding over the "proceeding" element; and

one triad for its activity, the "intelligible intellect" (noētos

nous), presiding over the "returning" element.

Each triad follows the pattern, the self-constituted henad itself + its power = the resultant entity (cf. I.A.1).

Being as a whole is called the "mixture" (mikton; ex. Plato Phlb.22), since it is the first mixture of Limit and the Unlimited, in the direction of procession which involves substantial change - ie. in the 'vertical' sense; hence the other name, the "first class-order" (prōtos diakosmos). It is designated the "intelligible" order (noētos), which is the object-of-thought, thought or intellect (nous) occupying its own and separate level. This "plane of existence" contains the manifolds of forms in a "hidden" manner (kruphiōs)².

The various titles and cosmological attributes given to the structure triads of Being, as well as the other hypostases, are mainly derived from Platonic sources, although they are blended with technical terms extracted from the Orphic writings and the so-called Chaldean Oracles, or Proverbs, (Chaldaika Logia).

A good deal of these ascriptions and cross-correspondences between the systems had been established in Athenian Neoplatonism long before Proclus, moreover, it seems that they formed part of the 'inner' curriculum accompanying initiation into theurgy.³

The first triad represents the substance of Substance, the being of Being, and therefore is the level (or the sub-level) where the whole hypostasis of Being is expressed most appropriately, hence the name "being-itself" and "substance-itself" (autoon, autoousia). Furthermore, this is the highest, in strict hierarchical terms, aspect of Being, and is therefore 'nearest' to the One. In this sense, it is very much like the One and can be said to be the place where several of the One's features, which exist in the One "as causes", exist here "actually" (viz. kath' ousian); hence the titles "good", "one being" (hen on), "remaining" (monē) and "limit" (peras).

It is also called the "symmetry" of the mixture (see Plato Phileb. 65A, cf Tim. 35A-37A), and "prior to eternity" (proaiōnios), compared to the second triad.

The second triad lies, as it were, in the middle of Being, and represents the life and power of Substance to proceed. Appropriately, the technical terms for it include the "intelligible life" (noētē zoē), "centre of the intelligibles" (kentron noētōn), and "procession" (prohodos).

But the more cosmologically significant entities identified with this triad of Being, are: "wholeness" (holotēs) and "eternity" (aiōn).⁴ That Proclus places "wholeness" prior to "totality" (pan), which is in the next triad, is most probably due to the Platonic and Aristotelian argument, that "wholeness" has an internal unity which is its form or essence, and therefore is more than the "totality" of its parts, totality being merely an arrangement of parts.⁵ Here is, then, the origin of the Universe-as-a-Whole. Implicit is also the vitalistic view of the cosmos, since the whole-universe is at the same sub-level as intelligible life. The identification of this triad with the eternity of the world seems to follow from "wholeness", which must be in a state of "eternity" in order to be sustained. His Platonic sources for it included the discussion on the Model (see next triad) and eternity in the Timaeus (37-38), but the possibility that here is an appropriate, albeit uncredited,

reference to the Chaldean Power Aeon, cannot be dismissed.

Thus the power of Being may be considered as the "monad" cause of wholeness and eternity, with participated members the "beings" which are whole and eternal.

The third triad is at the end, so to speak, of Being, and represents Being's activity and "reverting" principle, Being's intellect. The appropriate titles are therefore, "end-limit of the intelligibles" (peras noētōn), "activity" (energeia), "return" (epistrophē), "intelligible intellect" (noētos nous) and "substance's intellect" (ousias nous). Also called "eternal" (aiōnios), since it is posterior to eternity itself.

The cosmologically significant entities here, are:

"the total Universe" (to pan), "plurality-itself" (autoplēthos); the "Living-being itself" (autozōon), "intelligible Living-being" (noēton zōon); the "Model" or Paradigm, and "form of forms" (eidos eidōn).⁶

After the Universe as a whole comes the Universe as the totality of its parts. In effect, here can be found the nascent plurality of the universe, the wholeness and unity existing prior to the sum total of every-thing, hence the attribute "plurality itself" which is the "first-born" of the power of Being.

The identification "intelligible Living-being" and the "Model" are taken from Plato's Timaeus (30-1, 37 etc); they refer to the intelligible realm which provides the "form" and "pattern" to the sensible world, through the creative, efficient action of the Craftsman, the Demiurge. In the Timaeus account, the universe was conceived vitalistically, that is, as a living, moving being with its own source of motion, soul, so the "model" by which it was fashioned must be the "intelligible Living-being" itself. More specifically, Plato had established the existence of four such archetypal "living-beings" within the "Model", one corresponding to

the celestial bodies, and the other three to the creatures of the air, water and earth. The Model naturally became the "intelligible" origin of the 4 Elements, and Proclus seems to view it as such.⁷ "Form of forms" is yet another reference to the "intelligible" reality, although this particular expression betrays the splitting of the intelligible realm, in general terms, into a specifically "intelligible" hypostasis where the "forms" exist "causally", and a specifically "intellectual" hypostasis where the "forms" exist properly.

This splitting of the intelligible realm into separate niches or modes of existence was almost certainly a development of Athenian Neoplatonism, thus "thought" (nous) and the "object of thought" (noēton) acquired their own grades of existence. The further, three-fold division into "intelligibles", "intellectuals" and the intermediary between them, the "intelligibles as well as intellectuals" - perhaps a Proclan addition - followed, philosophically, from the three-fold division being-life-intellect. Thus the separate modes of existence mirror this three-fold internal structure. The intelligibles and intellectuals can be considered as hypostasized projections of the "proceeding" life of Being, the intellectuals as projections of the "reverting" intellect of Being, whereas Being itself is the essence of the intelligibles which "remains".⁸

As Proclus says in his Neoplatonic jargon, Being "embraces and comprehends" (perileptikon) everything: it is the prototypal matrix of the universe.

NOTES ON I.B.2

- 1 For the Platonic background to non-being and not-a-thing (mainly in the Sophist and Parmenides) cf. G.E.L.Owen "Plato on not-Being" art.12 in "Plato" vol.1 ed.G.Vlastos. However, Owen's point relates primarily to the interpretation of negation as difference, rather than to not-being as potential existence.
- 2 Eg. Pl.Th.III 101.
- 3 For the Orphic and Chaldean elements, eg. Pl.Th.III 80, 73, 99; cf. In Tim.I 311-5; In Crat. 59,10.
The "mystagogy" which he received from his master, Syrianus, is the secret, mystical theology of the "Hellenes", which was assumed to have been passed on from the Orphic mysteries to the Pythagoreans and then to Plato, see Pl.Th.I 25-6, III 52,20-1. Also see J.Trouillard "La Mystagogie de Proclus", the preface. For the Platonic sources, Pl.Th.III ch.27, the various triads recapitulated.
- 4 "Wholeness" and "Eternity", from Parm.142 and Tim.37 & 38, see Pl.Th. ch.25, and ch.16 & 18, respectively. For Eternity, Aeon, hypostasized, also El.Th.53; about the Chaldean Aeon, 'adjusted' by Proclus from the god of Time to the god of Eternity, Lewy op.cit. p.99-105. Cf. In Tim.III 16,5-10.
- 5 Wholeness and the totality of parts, cf. Plato Theat.203, Laws X 903-4; Arist. Meta.V 1024a, VIII 1045a. Also see Proclus Pl.Th.III ch.14 p.50 (Budé).
- 6 "Totality" (to pan) from the Sophist 244, Pl.Th.III ch.20; "Plurality itself" from Parm., III ch.26; "Living-Being" from Tim., III ch.15 & 18; "Model" III ch.15; "Form of forms" ch.18 p.63,2. The term "first-born" (prōtogenēs) is Orphic, III 91,11, frg.64, although it is made to link with Parmenides.
- 7 The tetrad of the classes of beings or the tetrad of forms, III ch.19; cf. In Tim.III 108-112. This is of course hardly controversial since the "four ideas" had been modelled on the Empedoclean "roots". Also see In Tim.II 52,20-53,10, which includes the same ref. to the Pythagorean tetradic number-symbolism as Pl.Th.III 64,19, and accomp. note 4 p.136 (Budé).
- 8 Eg. Pl.Th.III 35,8-36,8; El.Th.103.

3. LIFE, POWER

Apart from the obvious attribute of vitality, Life, in Proclus' system, also denotes the rather more general properties of multiplication, progression and emanation.

Cosmogonically it represents the expansive phase of the universe, the dynamic parting and separating of the unified-whole, Being. The hypostasis of Life seems to be essentially a dynamic process - hence the identification with "dunamis", that is, power (to proceed forth) - rather than a stabilized form of existence. In this sense, it is unlike the immediately previous mode, Being, where everything abides (remains) in the prototypal matrix, and the immediately next mode, Intellect, where the products of the procession have settled and clustered into "formal aggregates" (eidētikai periochai).

But all this activity is still non spatio-temporal, space and time themselves appear at a later stage. Nevertheless, the notion of movement is very much present, firstly, by virtue of the dynamic nature of this mode of existence, and secondly, through the association with soul, the (Platonic) principle of motion per se.¹ Considering that the motive activity of soul is said to take place within time (see El.Th.191), Life seems to be the purely "causal" aspect of motion, Soul where motion exists "substantially", in its own level, with the tri-dimensionally extended Body having motion "by participation" only, but manifesting it properly in spatio-temporal terms.

However, Proclus found another appropriate role for this level: that of providing the bridging, connecting link between the Intellect and its object, the intelligible Being, in the direction of "return".

All of the attributes and entities which Proclus assigns to Life, in Bk. IV of the "Platonic Theology", reflect this dual view of it, viz. the cosmogonical and, for the lack of a better word,

the epistemological.

"Cosmogonical" is very appropriate, because here is the "procession into plurality", in effect, the birth, or the "bootstrapping", to quote the latest scientific jargon,² of the universe out of its simple and "hidden" form of existence.³ It is also no accident that this is the panorama which all minds strive to behold in their "return", the journey to full comprehension of the origins; indeed, Proclus considers it to be the place proper to knowledge, science (epistēmē).⁴

The various names and titles for this level are drawn chiefly from the "Parmenides", "Phaedrus" and "Cratylus";⁵ "Parmenides" predominantly for the cosmological and proceeding aspect (eg. the ref. to Number, Shape, Contact), and "Phaedrus" & "Cratylus", predictably, for the more 'inspiring' returning aspect (the ref. to the "beholding" of Heaven etc. in the Phaedrus Myth). There is also a concordance with the Chaldean sources, such as the references to the tripartite division "empyrean"- "aetherial"- "material".

The self-constituted henads characteristic of Life are the "intelligible as well as intellectual" (noēton ama kai noēron), also designated the "connective" order (sunochikē, sunagōgos, sunektikos), that is, connecting the intellect with the intelligible.⁶ This intermediary role together with the overall dynamic quality are probably the reasons for its omission as a separate hypostasis - or rather its absorption in the preceding (and succeeding) order - when Proclus gives a shorthand account.

"The intelligible and intellectual order of divinities are produced according to all of the intelligible causes (noētas aitias), from power (dunameōs) they are allotted the characteristic property of procession (idiotēta tēs prohodou lachousai), but from life they receive the portion of being (moiran ontos) which is suspended from them (exērtēmenēn autōn) - for life is coupled (suzugos) to power, and life is in itself infinite (zoē kath' hautēn apeiros),

and since all motion has the unlimited ($\bar{t}\bar{e}\bar{n}$ apeirian) co-existent in its very own nature, and power is the unlimited which gives birth to everything ($\bar{d}\bar{u}\bar{n}\bar{a}\bar{m}\bar{i}\bar{s}$ apeiria(s) $\bar{g}\bar{e}\bar{n}\bar{n}\bar{e}\bar{t}\bar{i}\bar{k}\bar{e}$ $\bar{t}\bar{o}\bar{n}$ $\bar{h}\bar{o}\bar{l}\bar{o}\bar{n}$) (cf. I.B.1.2,3)" (32).

The rank of Life, as a whole, is made to correspond to the Heaven of the Phaedrus Myth, so it is in effect the intelligible heavens, as opposed to the sensible, corporeal heavens.⁷ Another jargon reference for it is the "second class-order" (deuteros diakosmos), by comparison to Being, which is the "first".

Proclus specifies, again, three main triads for the description of the monadic Life, but this time each member of each triad has exteriorised its own triadic structure resulting in 27 (exteriorised) members in all (ie. 3^3 ; cf. Being 3^2 , Limit-Unlimited-Providence 3^1 , with the One $3^0=1$, as it were).

The first triad (or ennead) closest to the intelligibles of Being, is the substance and the "remaining" element of Life, ie. it is the "intelligible" part of Life.

The second in the "middle" is the power and life of Life, where the quality of the whole hypostasis is expressed most appropriately.

The third closest to the intellectuals of Intellect "below" is the activity and the "intellectual" part of Life.

Many of the technical terms of the structure-enneads underline the connective and "sympathetic" property: "continuity" ($\bar{s}\bar{u}\bar{n}\bar{e}\bar{c}\bar{h}\bar{e}\bar{s}$), "communion" ($\bar{k}\bar{o}\bar{i}\bar{n}\bar{o}\bar{n}\bar{i}\bar{a}$), "friendship" ($\bar{p}\bar{h}\bar{i}\bar{l}\bar{i}\bar{a}$), "contact" ($\bar{h}\bar{a}\bar{p}\bar{h}\bar{e}$); and also the appropriate relationship with Being: "being", "substance" (ref. to the first group), "wholeness" ($\bar{h}\bar{o}\bar{l}\bar{o}\bar{t}\bar{e}\bar{s}$, the second group; cf. second triad of Being); as well as with Intellect: "perfection/completion" ($\bar{t}\bar{e}\bar{l}\bar{e}\bar{i}\bar{o}\bar{t}\bar{e}\bar{s}$, the third group; cf. the first paternal in Intellect, and the perfecting divine henads I.B.1.3).

Most of the other technical terms for each of the triads/enneads betray the differentiating and pluralizing quality of this mode of existence: "difference" (heterotēs; the 1st group); "one and many" (hen kai polla), "whole and parts" (holos kai merē), "colour" (chrōma) and the tripartite division "empyrean"- "aetherial"- "material" (all these for the 2nd group); "perfection" "prior to", "made up of" and "within" "parts" (pro tōn merōn, ek tōn merōn, en tō merēi) (all of these for the 3rd group).

The level of the first triad/ennead is the place of "vision" (thea), the place proper to knowledge-science, "knowledge itself" (autoepistēmē) and "true science" (alēthēs epistēmē), also the "field of truth" (alētheias pedion), "soundness of mind" (sōphrosunē), where "right judgement" (dikaiosunē) and cosmic "Law" (thesmos) are operative; it is interesting to note that Proclus considers it to be "feminine" (thēlu, thēluprepēs) and "maternal" (mētrikos) in character. But above all this is where the "plurality itself", in the third triad of Being, is expressed and delineated by "Number"⁸ (arithmos), so that the dynamic emanation is not chaotic or haphazard.

"Number has many properties, not all comprehensible by the human mind, which can be grouped into two primary capacities (dunameis), the capacity to generate everything, and to reassemble all the products back to unity...Number is in the middle between the intelligibles and the intellectuals...on the one hand, it unravels (anelissei) the intelligible manifold and brings out (prokaleitai) its hidden (kruphion) and unified content into distinction or separation (diakrisin) and productive generation (gonimon apogennēsin), on the other, it reassembles the intellectual multiplicity into union ...it gives subsistence, firstly, to the intellectual numbers which constitute form (eidētikous) and are universal (katholikous) and preside over the creation (poiēseōs) and generation of the universe; secondly, those which are hypercosmic...and measure (metrētikous) the encosmic gods (ref. to Soul and the celestial bodies); thirdly, these celestial 'numbers' which are the governors

of the perpetual revolutions and revolve (sunelissontas) all the circles according to their own intellectual causes (noeras autōn aítias) (see II.B.1,2,4); finally, those which are sublunar, maintaining and delimiting (sunechontas, peratountas) the indefinite and unstable nature of matter with 'numbers' and 'forms' (Plato Tim. 53B)" (33).

With the circulation of the intelligible heavens (ref. to the 2nd triad/ennead, in particular) the plurality acquires a kind of motion, and in the third level it acquires "shape" (schēma).⁹

Thus all stages of the formation of the universe are, as it were, rehearsed in the intelligibles and intellectuals, prior to the creation in space-time.

NOTES ON I.B.3

- 1 Eg. El.Th.188-9; as Dodds pointed out in his notes, p.297, Proclus tries to distinguish and reconcile the "life" of soul from and with the Form of "life". Life and motion, cf. Pl.Th. III 46,13-18, with Arist. Phys.VIII, 250b.
- 2 The latest cosmological theories, S.Hawkins, A.Guth et al, propose that before the "Big Bang"; and prior to the existence of spacetime, there was a phase of ultra rapid "inflation" brought about by quantum "bootstrapping" out of virtual nothingness; for a good popular account P.Davies "Superforce" (1984).
- 3 The "hidden" form of existence in Proclus' terms is generally "unity" or uniformity, but in this instance it is the "intelligible being", eg. Pl.Th.III 89,1; IV 11, IV 8,15.
- 4 For the place of "thea" and the Meadow (leimōn, also alētheias pedion) of the Phaedrus, as well as "epistēmē", Pl.Th. ch.4, 9, 13-15.
- 5 The Platonic passages are Parm.142-5; Phaedrus 246-250; Crat.396.
- 6 "intelligible and intellective", "connecting", IV ch.2 . This whole order and hypostasis seems to have both originated and developed by Proclus, see E.R.Dodds p.282, cf. p.252-3, of his notes on the El. of Th., and H.D.Saffrey and L.G.Westerink Pl. of Th. vol.IV p.xxxvi.
- 7 Intelligible vs sensible heaven, eg. Pl.Th.IV 19-22, cf. In Tim.III 174-5.
- 8 Proclus' treatise on Number occupies a significant part of bk.IV see ch.28-32, esp. ch.29-30. Number is, effectively, hypostasized. For the "Four Forms" see IV p.88. The predication "feminine" has to do with the "gennerative" and "multiplying" characteristics.
- 9 Celestial circulation, and motion of the intelligible heaven, IV ch.20, cf. In Crat. 59,10 (Pasquali). "Schēma" IV ch.12, p.40 (Budé). Proclus also places here "Contact" (haphē), p.40, which has to do with the "joining" char.; interestingly, he says that this is the "paradigm" of the "liberated" gods (see I.B.6), the order which suffers the same fate of elimination as the "intelligible and intellective", when he gives a shortened version of the hierarchy.

4. INTELLECT

The role of the Intellect (nous) in Proclus' system also reflects the dual aspect of "proceeding" and "returning". Viewed as the activity and intellect of Being but with its own specific mode of existence, it is the third element, the returning principle, which elevates things to the intelligible order proper. This is roughly equivalent to the attribute of mind. It includes, though, not only the "separable" rational kind of intellect (cf. self-constituted properties I.A.1) which entities such as man and his "betters" have (ie. have as a participated property), but also the capacity for bare cognition, which even the most irrational of creatures have (ie. the animals; see I.B.intro.). On the other hand, Intellect, and especially the activity of the monadic Intellect, is identified with the Creator of the physical world, the Demiurge - Craftsman of the "Timaeus", the Efficient cause (poiētikē aitia)¹, which puts form and order onto the indefinite, chaotic matter.

So, the Intellect qua "mind" is at the tail-end of the intelligible realm, but qua "form" (idea, eidos) is at the head of the sensible. Whereas as "mind" it extends as far as to animals, and is in this respect less "universal" (see I.A.1) than Being and Life, as "form" it is as universal as Being, since even inanimate things have form.²

For Proclus this is far from being an inconsistency: on the contrary, it is a good example of the appropriateness rule. Firstly, it emphasizes the indivisible relationship between Being, Life and Intellect, as differentially hypostasized orders of essentially the same sort of existence, the intelligible (in general terms). It is an example of diversity in unity among the intelligibles. Secondly, it makes apparent the analogous aspect of the relationships, an important element of the whole system since action takes place through "analogy" and "sympathy". E.g., as the Creator is the activity of Intellect, so the Model, which according to the Timaeus account was "copied" in the crafting of the universe, is the activity of Being; again, the relation Creator to Model-Form is

as Intellect (as a whole) to Being, hence as intellect to intelligible, resulting in the existence of the "forms" in the mode proper to "nous" itself. The employment of appropriately shifting emphasis is at once the pivot of Proclus' Neoplatonic exegesis and the kernel of its apparent impenetrability.

The structure of the "monad" of Intellect, and the various technical properties and terms pertaining to it are given in Pl.Th. Bk. V (the text edition available at the time of writing is still only the 1618 of Portus).

The self-constituted henads of Intellect, which also characterize the whole order, are the "intellectual" (noeron), meaning quite simply the possession of intellect, or the rank proper to intellect itself (rather than to the object-of-intellect, the intelligible).

The properties of the "unparticipated", monadic Intellect spring from, as mentioned earlier, both the formal cum efficient aspect and the returning-intellective; for example:

"The intellectual divinities proceed from all the divinities prior to them, receiving union (henōseis) from the One...but substance (ousiais) from the intelligibles; and they are allotted all-perfect, connective and generative life from the intelligible as well as intellectual, but the intellectual property (idiotēs) they have by themselves. They cause all the divided orders to return to them but they are established in the intelligibles...They are all-perfect substance producing all secondary things...neither diminished by their procession, nor receiving anything additional by their generation (apogonēsīn)" (34).

However, the structure of the Intellect marks a departure from the triadic: "the intellectual divinities constitute a heptad (hebdomas)" (Pl.Th.p 249). Proclus defends it by introducing the Pythagorean number-symbolism which associated 7 with intellect,³ although it is highly likely that convenience begins to prove the better part of valour: according to the triadic he would have to account for

at least $3^4=81$ entities; in the Pl.Th.V he only presents about 7. Nevertheless, he predictably resolves the heptad into two triads plus one monad.⁴ But this change in the pattern sufficiently underlines the special position of Intellect with respect to the creation of the physical world: the second triad and the monad are chiefly there to preserve the immutable identity of the creative source and the "forms".

The first triad is composed of three "father" entities (see divine henads I.B.1.3), which are the source of the causation as it is exercised by the Intellect. They preside over, respectively, the substance, power or life, and the activity or intellect of Intellect. Furthermore, they are identified with three gods of the Greek pantheon, Cronus, Rhea, and Zeus.

The first "father" is "according to the intelligible...abiding and remaining in himself";

The second, who has also the capacity of "mother", is "according to life... proceeding and vivifying all things";

The third is "according to intellect...glittering with creative (demiourgikas) productions" (35).

The second triad is composed of the "uncontaminated" (achrantoi) entities, which belong to the "guardian" (see I.B.1.3) class, guarding each "father" individually. This is deemed necessary because of the state of differentiation found at this level, and because of the debut of involvement in matter.

The monad represents the state of differentiation itself, and is the "dividing element" (diaretikē monas), "difference" (heterotēs), and "source of differentiation and separation" (diakriseōs pēgē). Here is, then, the formal beginning of the expansion, extension and spreading of the universe, as well as its dispersion and division into different forms.

Examining the "fathers" in little more detail, the first represents the purity of Intellect (as in Plato "Cratylus" 396) "being an unmixed intellect (akērasōn noun)...pure, immaterial (aulos) and perfect, established above the creation" (36). The last statement, that it is "above the creation" (tēs dēmiourgias hyperidrumenos), is a hierarchical comparison with the third "father", the Creator.

The second represents the prolific diversity about to be unleashed in the creation of the universe, the purely dynamic aspect of the action, the power which imparts movement to the world (via soul, the more proximate principle of motion to body). Proclus identifies it with a causal entity "female" in character, the Mother of the Creator, out of whose womb both he and everything else were born.

"The life-giving Rhea...is allotted a maternal order among the paternal classes, and produces the Creator of all...she is at the middle-centre of the paternal intellectual triad, and is the receiving womb (ekdochikos kolpos) of Cronus' generative power, while she brings forth (apogennēsōn) all the causes which abide (menousas) in him...She is filled and impregnated (plēroumenē) with the intelligible and prolific power of the father prior to her, while she fills and completes (plērousa) the Creator who comes into existence from her...On this account Plato calls her prolific abundant capacity (periousian), 'flowing streams' (rheumata), as Socrates says in the Cratylus (Crat.402), and this goddess is a kind of 'flux' (rhoē - Rhea)...she shows her property of being the source of things by collecting in a unified fashion the divided currents of life (zoēs ochetōn). For the primary flux belongs to the primal source of things (prōtourgon rheuma pēgaion estin)...the causes of subsistence of all divine entities are called 'flowing streams of the primal source' (rheumata pēgaia). And the World-Soul is established as the fountain and principle of life (pēgēn archē zoēs), because it proceeds both from, what I call, the indivisible imparting of life (ameristou zōogonias) and the divisible (meristou) (ie. from the life of Intellect and from Soul: for the dual path of causation see I.A.1)" (37). In the "Chaldean" associated references

she is simply styled "the Goddess".⁵

The third, being the intellect of Intellect, or the activity of Activity, exemplifies the qualities of this mode of existence as a whole. Here are manifested, par excellence, both the returning-intellective, and the proceeding-creative aspect. Indeed, it is the Creator and Father of the world. Everything that exists 'below' this level is his created-thing, his creature. He is the generic causal entity of creation, which encompasses creation as a whole, and is the formal cum efficient as well as the more immediate final cause of physical existence. "The Demiurge is not only a divine entity, but he also contains in himself the intelligible and true being, and has comprehended in advance (proeilēphen) the final cause (telikon aition) of mundane things and also the paradigmatic (one of the three 'principal' (archikai) causes: they are, the final, ex. the good; the paradigmatic, ex. the activity of being; and the efficient, ex. the activity of intellect; the formal and the material are, according to Proclus,⁶ 'accessory causes' (sunaitia), concerned with entities, in particular)" (38).

His appropriate bond with the paradigmatic, intelligible Living-being, makes him the "intellectual Living-being" (noeron zōon) containing the formal (eidētikēn) and efficient (poiētikēn: lit. "making") cause.⁷ Yet, by comparison to the first "father" of the substance of Intellect, and because of his involvement with physical creation, he appears rather sullied.

"Very properly therefore, this universe has two sorts of life, period and revolution (sunkuklēseis), the one Cronian, the other Zeusian, as it is said in the Politicus Myth (Polit. 271 f.,). According to the one, it has all of nature's goods (automata panta phusein ta agatha), and life free of misery and weariness. But according to the other, it partakes of the material error-discordancy (hulikēs plēmmeleias) and multi-changing nature. For in the world (en tō kosmō) life is two-fold, the one is concealed or unnoticed (aphanous) and more intellectual (noerōteras), and the other is

more physical (phusikōteras) and visible or obvious (emphanous), and whereas the one is defined by Providence, the other, which proceeds in a disorderly fashion, is defined by Fate (heimarmenēn). The second, which is multiform and perfected through Nature (dia tēs phuseōs epiteloumenē) is suspended from the Zeusian order (Dias exērtētai taxeōs), but the first, which is more simple (haplousterā), intellectual and unnoticed, is suspended from the Cronian" (39).

It is worth noting, that the above quotation echoes strongly the Gnostic notion of a more proximate God Creator, who is decidedly less than perfect and 'rules' with Fate's compulsion.⁸ Yet, even here there is neither an expressed nor an implicit admittance, that the Creator or his physical creation are in any way "evil", unlike the Gnostic view in the main.

On the contrary, by comparison to the physical and material realm itself, the Demiurge is very much the glorious being, as it befits his station. He is the "king of the universe" (basileus pantos), bathed in and transmitting the light from the One, and kindling the Sun with it (cf. II.B.7), hence his title "source of the Sun" (pēgaios hēlios). "He especially (diapherontōs) gives subsistence to the Sun (ton holon hēlion), kindling its light from his own intellectual essence, in order that it have a transcending pre-eminence (exērēmenēn huperochēn) over the other gods (ie. the other planets)" (40).

The Demiurge's productive action seems to take place in broadly three phases : the first, is a participable property-entity of the same kind as him, viz. an "intellect", and the others are the substantially different, "soul" and "body".

"Zeus created the World-Intellect (noun tou pantos; this is participated, and is one of the causal paths to World-Soul) from himself, prior to all others", and then, still from himself "the rest of the intellectual and whole classes (ie. the ideas, and forms)".

"In conjunction with the 'Mixing Bowl' (kratēr) he created the World-Soul (psuchē pantos)" and the "partible souls", prior to the bodies. He also "created the souls' associated vehicles (ochēmata; see II.A.4.4) and arranged the appropriate souls around the appropriate divinity...this includes all the celestial, daimonic and sublunary classes...all according to the law of Fate".

"In conjunction with the universal Nature (holēs phuseōs) and Necessity (anankēs), he fashioned (plattōn) the World-Body (sōma pantos) and the partible bodies, and delineated (diagrapōn) the heavens".

Yet, this is not "creatio ex nihilo", and creation with a temporal beginning (and end). It is the imparting of form and shape, and fashioning, by "copying" on the appropriate substrate matter the eternal "forms" of the intelligible Model. For Proclus, standing in the Platonic tradition, it is essentially an eternal process - contrary to the Judeo-Christian conception of genesis - Time being "an image of Eternity", without beginning or end.⁹ Time itself is not a measure external to the created universe, but intrinsic to its fabric and created simultaneously with it, definable only by manifested change (such as the motion of the celestial bodies).

"(The Demiurge) generates from himself (aph' heautou genna) the whole of Time (holon chronon), by imitation of Eternity (mimēsīn tou aionōs), and also all the measures of time, as well as the gods which make manifest these measures (ekphainontas tauta theous: the self-constituted measures of time, the celestial objects)" (41).

NOTES ON I.B.4

- 1 For the development of the Timaeian Demiurge as a "lower" God, see Dillon "The Middle Platonists" p.7, 283-4, 299-300, 366-76; "Iamblichus Chalcidensis" p.37-9; Dodds notes on "El.of Th." p.284-6, and in more general about the "intellect" in late Neoplatonism, p.285-94. Also ref. on "intelligence" in Wallis "Neoplatonism", mainly on Plotinus. Proclus also calls the efficient, "demiourgikon" eg. In Tim.I 4, I 5.
- 2 Cf. El.Th.57 Cor. and see Dodds comment to that effect, p.232. Also see Pl.Th.V ch.1, p247 (Portus) with regards to the intellectual-intelligible relation, and the intellectual-formal relation.
- 3 It certainly seems that the "noeric heptomad" had been established by Iamblichus, see Dillon Iamblichus id. p.37, his comment on In Tim.I 308,18 f. (where Proclus talks about the 7 members of the noeric order and the Demiurge in relation to the Pythagoreans, and Iamblichus) p.306-9, and his appx.C p417-19. As Wallis, "Neoplatonism" p.133-4, points out metaphysical consistency has to give way to religious exegesis. See Pl.Th.V p249-52, the noeric the first of seven heptomads (incl. the planets)p250-1.
- 4 The structure of Intellect in general, V p249-52; the "fathers" p252-5; Cronus p256-65, Rhea p265-8, her "Chaldean" equivalent is Hecate, Zeus p268-318; the "uncontaminated" are identified with the Curetes, and the "source of differentiation", whose "Chaldean" equiv. prob. is the "membrane" (hupezōkōs humēn) separating the intelligibles from the "world", p325-35.
- 5 "thea" see Or.Ch. fr.54 extracted from many Proclan refs.; also see fr.50-2, 56. Strictly, she is Hecate, for as Lewy pointed out, p.84,note 66, Proclus has 'adjusted' the Chaldean scheme to fit the "Hellenic" theology. Rhea's "life-giving power" is moderated by the "formal" nature of the order as a whole, it imparts schema and bounds, V p248.
- 6 Eg. In Tim.I 2,1-10, I 3; cf.I 261, three "principal" and three "sunaitia", the third is the "instrumental" (organikon) 263,21. Also see Dodds p.240. There are simil. with the "principales" and "proximae" (Cicero), and the "sunektika", "sunaitia" and "sunerga" (Sextus); I do not, however, intend to pursue it any further, in this study.
- 7 Pl.Th.V p290.

- 8 For the Gnostic Demiurge, Dillon Middle Plat. p385-9; Wallis op.cit. p12-3; chiefly in H.Jonas "The Gnostic religion" p42-4, 96-7, 141-4, etc. Cf. J.Zandee "The terminology of Plotinus and of some Gnostic writings" (1961) p.24-6. The two Gods, the Superior and the Creator, are also present in the Hermetica, although the relative imperfections of the latter are not considered as evil; there does not seem to be an antagonism between the two; see Dillon id. p389-92, Jonas p148-173; also G.van Moorel "The Mysteries of Hermes Trismegistus", who on p21 remarks that because of this difference with Gnosticism "it would not do to mention both at a breath." The Hermetic position seems to be closer to the Neoplatonic, cf. Plato Tim.30A, where the Demiurge desired a good and orderly world, so far as possible, also 29E, although as Proclus observes In Tim.I 370 f. the imperfection is not resident in the gods but in the "lack of suitability" (anepedeiotes) of the recipient. The same is also implied in quote 39, viz. the discordancy is in the "suspended" series not in Zeus himself.
- 9 See, of course, "the Eighteen Arguments in favour of the Eternity of the world and Against the Christians" in Philoponus' de Aeternitate Mundi, esp. Arg.1, 3, 15, 18. Cf. In Tim.II 281,1-2, comment. on Tim.36E where it says that "after" the construction of Soul the Demiurge fabricated the Body, Proclus emphatically states that the "after" has sequential significance not temporal (mē chronikon hupolabēs alla taxeōs sēmantikon). For a thorough and penetrating survey, see R.Sorabji "Time, Creation and the Continuum" esp. part III.

5. SOUL

5.1 GENERAL PROPERTIES, AND THE HYPERCOSMIC SOUL

In Proclus' system, Soul is the first of the intermediary levels between the intelligible modes of existence and the sensible, physical. Bridging of disparate, different forms of existence via intermediaries is, as explained earlier (I.A.1), embedded in Proclus' ontology. In this case, the two dissimilar terms are Intellect, which is "activity", and Body/Matter, which have no active causal property by themselves, but are solely the "effects" of superior causes.

The order of divine henads presiding over Soul is called "directive" or "leading" (*hēgemonikēn*), "principal" (*archikos*), "assimilative" or "copying" (*aphomoiōmatikos*). The title "hypercosmic", literally above the mundane world, is reserved for (the divine henads of) the unparticipated Soul, and denotes its hierarchical position, firstly *qua* soul, in relation to the "worldly" body of matter, and secondly *qua* unparticipated and originating cause of soul, in relation to the soul series, the participated souls which operate in the corporeal world, of which the World-Soul is the member most-like the unparticipated "monad".

Proclus' theory of soul takes an inclusive view of the previous and established theories, as it may be already gathered by some of the above appellations. That Soul is a distinct hypostasis is clearly Plotinian in origin.¹ There is also the chiefly Stoic idea of the directive faculty in the psyche. Elsewhere can be found elements of the Aristotelian concept of the faculty and form of the body. But above all, for Proclus, soul is the Platonic principle of motion, or rather, the principle of self-motion (*autokinētos archē*) on which all other types of motion depend and hence called moved-by-another (*heterokinētos*), as well as the faculty which is a like image of "nous", also according to Plato.²

Thus soul is the immediate cause of motion and animated action to bodies, and the principle between intellect and body, as it were, absorbing, copying and then transmitting, all in one, the "forms" which are in intellect to body. In many ways Soul acts much like the creative aspect of Intellect, and this is reflected in the technical nomenclature, as it will be shown presently.

"For the hypercosmic class subsists about the intellectual divinities and according to intellectual paradigms, for being particulated they entirely assimilate to the intellectuals the entities posterior to them" (42). "Every image is produced through similarity to its paradigm-model. For what else is able to assimilate (aphomoiōsin) the world itself and everything in the world to the paradigms, but this hypercosmic class of divinities?" (43).

The structure of the hypercosmic and originative cause of Soul is described in the first half of Pl.Th. Bk.VI (text edition available is, again, only Portus' 1618).

The pluralization endemic to the modes of existence nearer to the realm of Matter would normally have resulted in an unmanageably large number of structure-members, so for convenience Proclus reduces them to about twelve, in a further departure from the original triadic scheme (as in Being and Life), although they still appear in (four) groups of three. The first group of three consists of 3 "father" divinities (cf. Intellect), called the "three""junior""creators" (treis, neoi, dēmiourgoi), and the "three kings", by virtue of their affinity with the Creator.³ The second group is the "life-giving triad" (zōogonos trias)(cf. I.B.1.3 the types of divine henads), the third is of the "elevating" (anagōgos) class type, and the fourth are the "uncontaminated" (achrantoi) (cf. Intellect), which belong to the "guardian" series.

The three father creators represent the particularized aspects of the Father Creator on level closer to the multiplicity of the mundane world in accordance with the rule that everything is everywhere but

in the appropriate mode.

Each of the three is responsible for the section of the universe proper to him. So, "firstly, with respect to the universe as a whole, the first of the three produces the substance of things, and establishes in the Creator all that proceed from him, the second produces the life (zōas) and generation (geneseis) of things, and calls (ekkaloumenon) into procession all that is in the Creator, and the third inspects the formal divisions (eidētikas diaireseis; ie. the particular 'forms'), and returns everything to the Creator. Secondly, with respect to the parts of the universe (merē tou pantos), the first arranges and orders (katakosmei) the fixed sphere and its circulation (aplanē periphoran; ie. the fixed stars), the second governs the planetary (planoumenēn) sphere and gives completion to (apotelei) the multiform, life-giving and efficient movements in it (polueideis kinēseis drastērīous kai gonimous), and the third inspects the sublunary place (hupo selēnēn topon) and gives completion to the terrestrial world (chthonion kosmon) in an intellectual manner (noerōs). Thirdly, with respect to the creative processions in the realm of generation, the first controls (diepei) the summit of generation (akrotēta tōn gennētōn), and governs the sphere of Fire and Air. The second, who is Poseidon, moves in every way (kinei panteiōs) the middle and multichanging elements, and is the inspector (ephoros) of all liquid substances (hugras hapases ousias) in both Air and Water. But the third, who is Pluto, honours (pronoias axioi) the Earth and everything in it with providence" (44).

But the member-entity which seems to exhibit more of the elevated properties of the Creator, is the "elevating" (anagōgos), which is identified with Apollo, the triad consisting merely of three attributes of his. He is assigned, appropriately, to the "solar" (hēliakēn) series, the series whose common characteristic is the light (phōs), each member representing and distributing the appropriate mode of light. The solar series commences with the One, representing the purest form of light, and ends with the Sun,

the visible light and the source of light among the sensibles. Another member is, as mentioned in the previous chapter, the Demiurge himself. His qualities seem to be passed on to the "elevating" entity in Soul by virtue of the link of the "solar" series, so, the attribute of "efficient" is found on an entity which is not classified normally as "father-creator": "(Plato) designates the whole triad Apollonic...through the one of the three he participates in unpolluted light and intelligible 'harmony'...(and the other two are) the creative dyad, called 'hands' (of Apollo), being efficient (drastērious) and motive (kinētikas) and creative causes" (45).

An understanding of the role of the "solar" series, in Proclus' system, is central to appreciating the value attached to the Sun as a special body among the planets, and the helio-centred emphasis (see II.B.7).

The process of differentiation - viz. the creation of the universe in terms of individual, particularized existence - is continued and confirmed in Soul. By analogy to the "differentiating, distinguishing" principle in Intellect, Soul manifests the principle of "dissimilarity"⁴(anomoiotēs; cf. I.A.3), albeit in a manner proper to the "assimilating" attribute: Proclus makes Soul the mode of existence presiding over the cosmic sympathy and communion (koinōnia); "this order of divinities is particularly presiding over the sympathy of the world (sumpatheia kosmou) and mutual communion...all things are in each other and similarity is their bridging (sunagōgos)" (46). This marriage of dissimilarity with similarity parallels the joined multiplying-and-connecting function of Life, which corroborates the special relationship, in terms of function, between Life and Soul, in Proclus' scheme.

Nevertheless, on the whole, Soul is the principle which divides and separates into parts and appropriate sections. As he phrases it, "the group of the leading divinities is wholly arranged in the partible orders" (47). "The order of the directive divinities divides that which is united in the Creative Intellect, expands

that which is whole in the activity (energeia) of the intellectual divinities (a synonym of the Creator) and brings into diversity the simplicity of their providence" (48). Subsequent to the division and separation of Soul is the division and separation of Body, the mode of existence where differentiation results in and becomes spatial extension.

Soul is also the principle of motion, expressing its ceaseless activity in time, and manifesting it, in the first instance, in the form of continuously periodic movement (and then, as finite, linear or irregular).

The relationship between soul, body and space is not unconnected to that between soul, motion and time; both are aspects of the causal, active role of soul in and upon body.⁵ Indeed, in Proclus' system, the "living" entities, viz. the ones capable to some degree of self-movement, are characterized and classified not so much by the substance of their bodies, but chiefly by the kind of soul they have (or partake of), in other words, by the dynamical rather than by the inert constituent.

NOTES ON I.B.5.1

- 1 Plotinus Enn.V,2 and for more general description of soul Enn.IV esp. IV 1-2, on the "leading principle" etc., IV 3,17-23, IV 7 the soul in relation to intellect, and to body. Cf. with Proclus El.Th.186-200, 211, and In Parm.col.1004-7, one of the most important ref. on Proclus' theory of soul.
- 2 Psuchē and the noetic realm, eg. Phaedo 65-7, 78-9, Rep.IV 435-44, Tim.69-72; as the principle of self-motion, Phaedrus 245-9, Laws X 894-5, Tim.89. Both notions can be traced before Plato, as the principle of animation is clearly pre-Socratic, and as the immortal intellectual principle in body seems to be Pythagorean, however Anaxagoras appears to have combined both. See Arist. de Anima I,1-5.
- 3 The three creators correspond to a tri-partite division in Neoplatonic exegesis; there is also the tri-partite monads of the creation, the Zeusian for the intellectual, the Adonaic for the "mundane", and the Dionysian for the in-between, the "creators" of Soul belong to the Dionysian; see In Tim.I 446, III 241. For the tri-partite division of the universe, as in quote 44, also see In Tim.II 56.
- 4 "Dissimilarity" Pl.Th.VI p347-50, 384-6.
- 5 Soul as a principle of motion, as opposed to Nature (Aristotle), referred to a more purposeful kind of motion, eg. In Tim.III 119, also In Rep.II 206,10-15, where Anankē, the Necessity of Nature (see I.B.6) is said to pertain to bodies not to the self-moving entities (autokinētōn hupostaseōn).

5.2 THE WORLD SOUL

The concept of a soul, as a principle of motion and perfection for the entire world originated in the Platonic tradition, which saw the world as living being. In Aristotle, Nature (*phusis*) seems to have fulfilled this role, although not as a single principle. However, the concept of a soul for the world was maintained in Stoicism and Middle Platonism. Its importance was confirmed by Plotinus, who made it one of his hypostases. The Plotinian Soul had both the intellectual and the animating attributes, and furthermore, it was made responsible for the production of the sensible world - through the process of "copying" - and its sympathy with the intelligibles.¹

Proclus' theory follows broadly Plotinus', although it bears witness to the conceptual tidiness afforded by the distinction into unparticipated and participated. Thus, Soul as the originative cause of the family of souls is the unparticipated "monad", the Soul above-the-world, whereas as the soul participated by the whole world it is the Soul in and of the World; so, according to Proclus, the World Soul is a participated property, as the variations of its title testify: soul of the universe (*pantos psuchē*), soul of the world-cosmos (*kosmou psuchē*), and encosmic, lit. in-the-world, soul (*enkosmios psuchē*). Nevertheless, it is the soul most like its unparticipated "monad" and consequently it displays most of the latter's properties and attributes; in effect, it represents it 'par excellence' in the world, so that the activity of Soul can actually operate in space and time. This similarity can be problematic because certain terms and references, such as "one soul" (*mia psuchē*) or even "whole soul" (*holē psuchē*), may mean either. The distinction is made easier when there is also a reference to "circular motion", an almost sure indication to the World Soul, since unparticipated causes are exempt from movement.²

According to the twofold path of causation (see I.A.1), the World Soul acquires its intelligible and intellectual properties from its very own World Intellect (*nous pantos*), which is derived directly from the Demiurge himself (see ch. on Intellect).

However, it acquires the soul-stuff and the principle of motion from the unparticipated cause of Soul, although the dynamical quality per se is inherited from "higher" causes, the power of Intellect and the Power or Life itself (see I.B.4 and 3. respectively). Consequently, the World Soul embraces both the formative and the dynamic or energetic properties, which is then able to actualize and operate within the World Body (*sōma pantos*), the spatially extended and temporal, physical mode of existence.³

Proclus derives the structure of the World Soul, predictably, from the *Timaeus* account (Plato *Tim.* 34B-37C). "The Creator makes (*poiētai*) the World Soul as an image (*eikona*) of all the divine orders, in the same way as he makes the sensible world an image of the intelligible. Firstly, he gives subsistence to the whole 'existence' (*ousia*) of the soul and subsequently divides it into 'numbers' (*arithmous*), binds it with 'harmonies' (*harmonies*), and puts it into order with 'figures' (*schēmata*), I mean, the rectilinear and the circular. Then, he divides it into one circle and seven circles...the monad subsists according to the circle of 'sameness' (*tautotēs*; also meaning 'identity'), but the the divided part according to the circle of 'otherness' (*heterotēs*; also 'difference')" (49).

The main ingredients are the qualities of "sameness" and "otherness". Among the intelligibles there is a predominance of "identity", but among the sensibles a predominance of "difference" and separation. The World Soul, as an intermediary, has evenly both.

The "harmony" is the harmonic blending of these two basic ingredients, which in the "*Timaeus*" it was expanded into a complicated exposition of the Greek diatonic musical scale, a rather obvious sign of Pythagorean influence. Proclus' own interpretation of this passage (*Tim.* 35C-36C), along with most of his references to the World Soul, can be found in Bk.3 (Diehl vol.II) of his "*Commentary on the Timaeus*". The "numbers" are those which form the numerical ratios or proportions associated with the scale.

The "figure" pertaining to the World Soul is the famous X shape formed by the crossing of the circular bands, made from the stuff of "sameness" and "otherness". These bands are in fact the equatorial circle of the celestial sphere and the ecliptic circle, respectively, so the X shape represents the diurnal and the zodiacal celestial motion. In later tradition, and under the "Chaldean" influence, the symbolical 'metaphysical' character of the Timaeus X was variously cultivated till it assumed a magical, virtually talismanic status, doubtlessly by being coupled to the existing and religio-mythologically rich symbol of the cross.⁴

Another figure which depicted the combined effect of the two types of regular heavenly motion upon the planets, in particular, but not directly pertaining to the World Soul, was the helix, the spiral. As a religious symbol, it seems to recur among the cult-imagery of the coiled snake, and is especially prominent, in late antiquity, in the syncretic representations of Aion or Time, one of the chief deities of the Mithraic pantheon. In geometrical theory, it resulted from the simultaneous combination of two movements along different planes, primarily a combination of circular and rectilinear, but also of circular with circular, as in the planetary motion. Proclus was acquainted with both the symbolical, 'elevated', and the geometrical, astronomical ramifications; moreover, he found the association with Time as deity to be aptly related to the idea of planets as measures of time.⁵

Within Proclus' philosophy, the World Soul is a good example of the application of the "appropriateness" principle: the "Same" constituent with all the "intelligible" properties is appropriately manifested in the uniform revolution of the sphere of the fixed stars (aplaneis), whereas the "Different" constituent with all the animating and physical qualities is aptly manifested in the multiform circulations of the "wandering" stars (planētai).⁶ This double-sidedness of the World Soul, the one aspect being a like image of the realm of pure "form" but the other a principle of motion "entwined" with the physical world, is itself part of

the twofold, intellectual-creative mode of activity, as it is first encountered in Intellect, and in general, part of the division into limit-unlimited.

NOTES ON I.B.5.2

- 1 An example of pre-Socratic "world-soul" is Anaxemines' pneuma, which pervades the cosmos, like the air-soul in man; fragm.2. For Plato on the Soul for the World, see Cornford "Plato's Cosmology" p57-96; A.E.Taylor "A Commentary on Plato's Timaeus" p105-136; T.J.Tracy "Physiological theory and the doctrine of the mean in Plato and Aristotle" (1969) p77-96; also see R.Hackforth "Plato's Theism" (1936) article 20 in Allen, Studies in Plato's Metaphysics", and on the "leimma" of the proportion theory in the World-Soul account, E.G.McClain "The Pythagorean Plato" (1978) with a detailed ref. on Proclus' interpretation. For Plotinus, A.H.Armstrong part III of the Camb.Hist.of Later Greek etc Philosophy, p250-55, and R.T.Wallis "Neoplatonism" p67-70; main text ref. Enn.V 2, also Enn.II 2, and for soul in general Enn.IV.
- 2 Unparticipated, hypercosmic Soul vs the participated World Soul, cf. El.Th.200, In Tim.II 285, 289; also see Dodds p.298 note 3 and p302 note 2.
- 3 World Soul and World Intellect, W. S. and World Body, see eg. In Tim.I 402-6, II 285-6, III 2-3.
- 4 According to the doctrine that every soul is part of the World Soul, the X was said to be "placed at the heart" (enkardion entheis) of every soul (cross the heart?), In Rep.II 143,21-4; also In Tim.II 247, 255-7.
See Lewy op.cit. on the "Chaldean" and other non-Christian background, p.252-4 and his notes, and p.270; cf. with p.xl of the intro. to vol.II of the Pl.Th.(Bude edition).
- 5 The "spiralling" snake symbolism appears also in the represent. of Hecate, the deity identified with the World Soul, Lewy op.cit. p92, 353-366; the winding of the stars as a serpent see ref. on p.293 note 131; use of the cross during initiation into the mysteries of Hecate cf. p269-73 op.cit. The association of the serpent with the World and the domain of the celestial spheres has the added implication of "evil" in Gnosticism, and is linked to the notion of an 'evil Demiurge, cf. Plato Laws X 896E an evil as well as a good World Soul and in Dillon "The Middle Platonists" p202-4, 375; for Proclus and his Platonists predecessors In Tim.I 282 ff.; the "irrational" part is made to refer to the "Nature" aspect. For the "spiralling" in Mithraism, Lewy op.cit. p405-6; also see L.A.Campbell "Mithraic iconography and ideology" (1968). Time, the planets and the helix, eg. In Tim.III 20, 40, 80, and in Festugière Comm.sur le Timée, vol.IV notes on p.38.
- 6 Eg. In Tim.II 257, 259-60, III 296,16-18; In Rep.II 149.

6. NATURE

The position of Nature in Proclus' scheme presents many problems. Firstly, it is often difficult to distinguish between the specialist usage of "nature" as a cosmological property and the common reference to the character of a thing. Even terms such as "whole" nature (*holē phusis*) are not always used in a technical sense. At a trivial level it merely attests to its origins in the Greek vernacular, although Proclus may also be exploiting the convergence with the Aristotelian and Stoic developments of the philosophical concept as the properties naturally immanent in material entities.

Secondly, Nature as an intermediary mode of existence between Intellect and Body seems to merge with Soul. This can very likely be traced to the alternating emphasis on soul and nature as the cause of motion; thus, according to Rosán (p. 171), when Proclus employs soul, the Platonic principle of motion, in its active role, "nature" as a separate hypostasis invariably disappears, but when he wants to stress the soul's intellective and copying function, then "nature" reappears.

Similarities also extend to other attributes, which were normally ascribed to Nature, such as the capacity for holding the "reasons", or proportions (*logoi*) of the world. The originally Stoic concept of "seminal reasons" (*spermatikoi logoi*; this form occurs in Proclus¹ also) was intended to explain diversity within a monistic theory. Compare, for example, the statement "the whole Nature contains in one (*en henī periechousa*) the reasons (*tous logous*) of the celestial and the sublunary entities, and distributes its own powers to the many natures, which are divided from itself and apportioned about the bodies" (50), with the statement "the World Soul has the reasons (*tou pantos psuchēn logous echousan*) and the hypostasizing powers of all encosmic things, and by necessity has not only the intellectual causes (*noeras aitia*s) of man and horse and all other animals, but also all the portions of the world" (51).

This particularly strong affinity between Nature and the World Soul in Proclus owes much to the Plotinian World Soul with its twofold aspects, one intellectual, and the other physical and inseparable from body.² Indeed, Proclus' placing of Nature between Soul and Body, and its usual designation as the corporeal "phusis",³ indicate that he fully accepted its complementary role with respect to Soul,⁴ although in his scheme there has to be an unparticipated cause of Nature, which qua unparticipated ought to be entirely separable and exempt from participation by any body, strictly even the World Body, contrary to the intended function of "nature". Proclus does designate an unparticipated cause posterior to Soul as "liberated" (apolutos) and "separable as well as inseparable from the sensible world" (chōristēn hama kai achōriston taxin tōn aisthētōn klērōn), in the second half of Pl. Th. Bk.VI, but this contradiction is, I think, the root cause of his unusual coyness in not identifying it unambiguously with Nature, the next problem. Altogether, it seems certain that he was aware of the difficulty created by an unparticipated Nature.

Thirdly, as already hinted, Proclus does not state clearly in the appropriate section in the "Platonic Theology" that the order of divine henads called "liberated", inter alia, and corresponding to an unparticipated cause posterior to Soul (proper) refers to the "monad" of Nature.

That there is such a problem at all appears to pass unnoticed by most of the literature on, or including, Proclus' philosophical system. Presumably, this stems, in the first instance, from the inconspicuous presence of Nature in Proclus' scheme, and secondly, from the fact that even in the majority of the more specialist literature on Proclus' hierarchy it is simply stated, or assumed, that the "liberated" order refers to unparticipated Nature without further qualification.⁵ At the other end of the scale, as it were, a recent and detailed study of the El.Th. in relation to the Pl.Th. does at least identify the problem, but unwittingly rather exaggerates it by leaving, literally, a questionmark in the place

specified by the "liberated" class.⁶

As the identification of the "liberated" order with unparticipated Nature does not appear to be fully documented, it would not be amiss to offer here at least a few pieces of evidence⁷ in its favour, internal to Proclus' Pl.Th. the place where the problem emerges, from my own reading: (i) One of the divine henads of the liberated order which he ascribes to the goddess Demeter, is said to generate the "life inseparable from body" (*achōriston sōmatos*), i.e. the mode of existence characteristic of nature. (ii) Another divine henad, predicated as Artemis, is said to activate all the "natural reasons" (*phusikous logous*); the adjective is a direct reference to nature, and the noun to one of its main functions, that they occur both together in tandem with Artemis, obviously in her older and Ephesian guise as Mother Nature, reinforce the certainty of the evidence. (iii) Proclus places Necessity with the liberated order, in Pl.Th. Bk.VI; earlier, in Bk.V, he states that the Creator produced Body in conjunction with Nature and Necessity (see ch.on Intellect), which is a roundabout way of identifying the liberated order with Nature. From all three it may be safely concluded that the "liberated" and "separable as well as inseparable" class serves to define the unparticipated cause of Nature, as it is required by the general principles of his system, despite the aforementioned problem. Besides, he would have undoubtedly regarded this arrangement as a coherent solution and reconciliation of the divided and inseparable quality of individual nature with the monistic and 'governing' character of Nature as a whole.

Other titles given to the liberated order also betray the delicate and uncertain relationship of monadic Nature with the sensible world, according to one of them it is almost literally, "touch and go": "touching and not touching" (*haphē kai mē haphē*), "both above and in the world" (*huperkosmios kai enkosmios*); nevertheless, it is decidedly "supercelestial", with the meaning above-the-visible heavens (*huperouranion*), since the celestial objects are the first order of divine henads to be in-the-world.

The liberated divine henads match in number the hypercosmic of Soul, they constitute a dodecad. Proclus groups them either in two monads plus one decad, or in four triads. The latter grouping matches, again, the four triads in the structure of Soul; they are, the three "fathers" and "creators", the three "life-giving" (zōogonikē) divinities, the aforementioned "Demeter" and "Artemis" among them, the "elevating"(anagōgikē), and the "uncontaminated" (achrantoi) and "guardian"(phrouretikē).

In the "father" and "creator" triad Zeus is encountered, again, signifying the presence of the Creator at each level, appropriately; on the next level after Nature he is Jupiter the celestial body. Poseidon, the middle father in Soul, is similarly also present governing in a manner proper to Nature, motion and generation. However, the third "father-creator" of Nature, personified as Hephaestus, is given the function of "breathing into" (empneei) the "nature of bodies" (phusis sōmatōn), and "fabricate the encosmic seats of the gods". This rather poetic description in fact alludes to the creation of body (cf. the statement that the Creator produced the Body in conjunction with Nature and Necessity; see I.B.4). The "encosmic seats" are the bodies of the celestial "gods", whereas "breathing into" seems to have the double meaning, breathing life into, and blowing in and inflating - as by the bellows of Hephaestus. Both are highly appropriate, according to the one he enkindles the nature immanent in every body, and according to the other he imparts the spatial distension, the volume characteristic of body. ⁸

The other members of the liberated order contribute in their own particular manner to the governing of the material world, although the more cosmologically important functions seem to be operated by the "uncontaminated" and "guardian" class. One of them, for example, personified in Hestia, "preserves the very being (auto to einai) of things...every thing which is stable (monimon) and unmoved (atrepton) is given subsistence...from the supercelestial Hestia, and on this account the poles of the world are unmoved and

the axes (axones) about which are the circuits (anakuklōseis) of the spheres...but this earth remains in the middle-centre without change...(however this Hestia, lit. the hearth) is not the earth which is in the material world (hē en tō panti gē)" (52).

Another guardian-like cause which Proclus places with the liberated order is that of Necessity (anankē). For the purposes of this introductory account I do not intend to expand on the complex theory of Necessity and Fate in Proclus' philosophy, much beyond the following quotation: "Necessity is entirely exempt from the mundane world, but by the last of her powers she imparts movement to the whole heaven...an orderly circulation from her own essence... she is not governing by force-violence (hōs bia), nor by obliterating the self-moving capacity (autokinēton) of life...but by comprehending every thing in an intellectual fashion, and by limiting-defining the indefinite and ordering the inordinate...she is a guardian... nothing escapes the divine law" (53).

Necessity is said to be the monad which gives rise to the triad of Fate (heimarmenē) - elsewhere, Necessity is called the "divinity established prior to Fate" (theotēta tēn proestōsan tēs heimarmenēs)- the triad being, of course, the three Fates. The three Fates turn the "spindle" and impart rotation to the heavens (see Plato Rep. X, 616 ff.).

Nature is the last of the incorporeal, active causes which produce, each in its own proper fashion, the sensible world; according to Proclus' hierarchical arrangement, the entities posterior to Nature are corporeal, viz. they have a body. Because of Nature's special position with respect to the corporeal world, it seems that its unparticipated cause is not only the originative "monad" of the appropriate participated family of individual "natures", but also that of bodies, as well.

It is certainly true, that there is no unparticipated cause of Body in Proclus' scheme; the order of divine henads following those

referring to Nature, correspond to the celestial bodies, which he would have found almost impossible to call convincingly "imparticipable", "monad", and the universal originative cause of body. Anyway, body in itself being regarded a passive and substrate quantity, a pure "participant", could hardly have deserved to rank among the active, determining and perfect causes. The only body in Proclus' system which comes closest to qualifying as the monadic cause of all others is the cosmic Space (see II.A.6), but even that is regarded as the vehicle of the World Soul.

Viewed in cosmogonical terms, Nature marks the stage in the formation of the universe, where, after the successive separations and particularizations, the "forms" have occupied their appropriate niches as "seminal reasons", and subsequently are given the final and ultimate separation, the spatial. It is the distension, the expansion of the universe into three dimensions; consequently, all dynamic activity and motion has, from this instant on, to be realized through spatial intervals.

NOTES ON I.B.6

- 1 "Spermatikoi logoi", eg. In Tim.I 143,17-18; III 188,5-10, III 191,7.
- 2 Nature as a lower soul in Plotinus, see notes on Plotinus' Soul in I.B.5.1&2, and Wallis op.cit. p52, 67.
"Seminal" or rather "forming" reasons or principles (poiountes logoi) occur also in Plotinus, although they are said to be in the Soul, and act as causes of movement, Enn.II 3,16-17, IV 3,10, IV 3,15; strictly, in the Nature aspect of the World Soul, IV 4,13-14.
- 3 "sōmatikē phusis"= Nature, eg. El.Th.21, this had earlier led Dodds to translate it "bodies" (viz. nature in a non-technical context) see p.209 of his notes; also El.Th.111, where "corporeal nature" also means "Nature".
- 4 Cf. intro to vol.I of Pl.Th.(Bude edition) p.lxvi-lxvii.
- 5 A list would include, Beutler (article in Pauly-W.), Dodds, Rosán, Wallis.
- 6 J.M.P.Lowry "The logical principles of Proclus' Stoicheiosis Theologike as ground of the cosmos" (1980), see p.102 & esp.103.
- 7 Refs., Pl.Th.VI p403-4 (Portus); also cf. El.Th.209, 186, 64, 78-82, for the various attributes of the "inseparable" and "nature". Also see In.Tim.I 79,5-6, II 146,4-9, III 241,25-8. Demiurge, Necessity and Nature Pl.Th.V 314; Necessity, Fate and the "liberated" order, Pl.Th.VI p404 ff. In Rep.II 94;(Pl.Pol.269). Another confirmation is via "Hephaestus", see below.
- 8 Pl.Th.VI p403-4, above; also see In Tim.I 142 ff., II 281,20-23, III 241,26.

7. SPACE AND TIME

Although in modern cosmology space and time are intimately connected, in ancient philosophy this was not necessarily the case. The concept of place, only later to become widely regarded as space, was predominantly associated with the theories on matter, as the receptacle-room and as the substrate where change takes place, whereas the concept of time was closely bound to the ideas on movement, continuity and the experience of events. Time related to the dynamics of change, but place to the container where change happens, the underlying medium which receives and endures through change. So, place had a somewhat inferior status with respect to time, especially when the Platonic time was defined as the "image of Eternity". One of the contributions of Neoplatonic thought was the virtual elimination of this difference, mainly as a result of the speculation on the hierarchical function of the intelligible "forms" and the intelligible matter (which generalized the concept of "image", and elevated, as it were, the substrates), but also on the permanent body-vehicle of soul and the immanence of power in body.¹

Proclus' conception of place is, that it is space, spatial interval or extension, and an immovable, indivisible, immaterial body (for a fuller discussion, see II.A.6). According to Simplicius' evidence in his Commentary on Aristotle's Physics, specifically the long Corollary on Place, our main source for Proclus' theory on place/space as well as of the other Neoplatonists, the attributing of body to place was a novel idea (not withstanding the definition of an "immaterial" body, see II.A.6).

"We will now put forward the theory, which was handed down as an innovation (*hēn kainoprepē paradedōke*) by Proclus, the philosopher from Lycia who was the teacher of our teachers; he was the only one of all we know who chose to call place a body" (54).

This unusual conclusion was supported by, if not stemmed from, the principle regarding the presence of intermediaries between different

modes of existence (see I.A.1): Proclus' Space is an intermediary between the World Soul and Body, ie. between the immaterial and incorporeal state of existence, on the one side, and the material and corporeal, on the other, hence the "immaterial body".

Furthermore, according to Proclus, Space as a cosmic body is composed of and delineated by light, and is the direct instrument (*organon sumphues*) of the World Soul. Both of these attributes attest to its elevated status: as the instrument of the World Soul - in his theory of causes, there is an "instrumental" (*organikon*) cause, classed as "accessory" type of cause - Space imparts to the entities of the world their appropriate "portions" of space, the "suitable", proper places. In this sense, it almost certainly qualifies as the "monad" of place, and, by virtue of its corporeal nature, of body. However, there is no evidence that Proclus intended Space for such a role, most probably, because the cosmic Space qua body does not possess a causal power of its own, but is the instrument and vehicle for the power of the World Soul. Yet it must be added, that insofar as Space is the direct or innate instrument of the active cause immanent in the world as a whole, this fine distinction between them may be extinguished, and thereby allow for an "active" Space, especially when compared to the multitude of material bodies proper.²

Time, on the other hand, together with its "model" Eternity, appear unequivocally as a proper series of properties, in full accordance with the triadic scheme, unparticipated - participated and independent - participated but dependent.

There is the unparticipated cause of Time (*amethektos chronos*), the "monad of Time" (*hē tou chronou monas*), which is the essentially motionless Time (*akinētos, menōn*), and the Time which is participated (*en methexei chronou*), and is essentially in motion (*en kinēsei*). Moreover, the participated time is subdivided into the "perpetual time" (*aei, aidios chronos*) and the "temporary, part of time" (*pote en merei chronou*), in other words, the independent and dependent

aspects, respectively.³

The unparticipated, originative cause of Time seems to be placed with the Intellect and the Creator. This agrees well with the concept of a calm, motionless Time, like the Intellect. In addition, it is in a near-perfect position for vindicating the definition "image of Eternity": as the Creator is to the Model (in Being, see I.B.2), so Time is to Eternity (also in Being), overlooking the marginally imperfect match (Eternity is not on exactly the same sublevel-triad as the Model).⁴

Another option open to him was the identification of Time-Chronus with Cronus, the first "father" of Intellect, in his scheme. This was a very old and common substitution, apparently originated with the sixth century BC philosopher Pherekydes, who was said to have been one of Pythagoras' teachers. Later, it was adopted by Mithraism and became widely established among the syncretic religions of late antiquity. So, Proclus would have had many good reasons for retaining the personification of Time as Cronus; yet, curiously, it seems, both from the very small number of references to it and their ambivalent tone, that he was not committed to it.⁵ The most likely reason for his hesitancy is that as a Platonist he actually preferred, or at least he had to show his support for, the Platonic derivation of the word Cronus as "pure intellect" (koros nous; Crat.396B).

In any case, the origin and the species of Time itself antecede Soul. "If something partakes of soul, it also partakes of time, but not conversely (ouk anapalin); for those without soul (apsucha) participate in time too; therefore time is placed over and beyond soul (chronon epekeina psuchēs)" (55).

But soul is the first mode of existence to partake of the participated quality of Time, and in its capacity as the principle of motion it actualizes time in the physical world: indeed, while soul's substance is said to be eternal (ousian aiōnion), its

activity is said to operate within time (energeian kata chronon).⁶

The participated and encosmic Time manifests in essentially two forms, as already mentioned, the perpetual duration and the finite (some time existence in a part of time). The latter is clearly the kind of time, or life-time, of the transient events and beings in the sublunary realm of coming-to-be and passing-away.

The former is chiefly the kind of time appropriate to the everlasting celestial objects, but also to things with perpetual existence only as groups-wholes (not as individuals), i.e. the four Elements.⁷

Besides this subdivision there is another which differentiates between the participated time as a whole, and as parts.⁸ It is aimed at the perpetual kind of time, which corresponds to the independent "self-constituted" class, since the finite existence in time is automatically by definition particulated.

The participated but self-constituted parts of encosmic Time, are the "measures of time" (cf. Plato Tim.38C ff.) determined by the celestial bodies, viz. the days, months and years, with the earth as an accessory (see II.B.8). Although the Sun and the Moon are the most obvious of the "measures", the others contribute their own "times" too, so, there is a Solar time, a Lunar, but also, a Saturnian, Venusian, etc., and according to Proclus, those of the fixed stars as well⁹ (see also II.B.6.1).

The participated and self-constituted whole of encosmic Time is the total "measure" proper to the World Soul. "Every psychic period is measured by time; but while the periods of the other souls are measured by some particular time, that of the first soul (prōtēs psuchēs, in this case the first encosmic soul, the World Soul) which is measured by time has the whole of time for measure (metroumenēs tō sumpanti chronō)" (56) (see also II.B.6.1). It is not the "monad" qua unparticipated cause of Time, but the participated time-member derived from the true monad of Time, which resembles

it most.

This monad-like universal Time complements appropriately the monad-like universal Space, in Proclus' scheme. Both of them relate to the active cause and principle of motion of the whole world, the World Soul, and both of them are the integral whole immediately prior to the multitude of the parts, Place/Space to places/spaces, and Time to times.¹⁰ Furthermore, both are essentially circular.¹¹ Space is, according to Proclus (see II.A.6), spherical, a ball of light, and Time is periodic, without beginning or end.

NOTES ON I.B.7

- 1 Main ref. works are, S.Sambursky and S.Pines "The concept of Time in Late Neoplatonism" (1971); S.Sambursky "The concept of Place in Late Neoplatonism" (1982); S.Sambursky "The physical world of Late Antiquity" (1962), the section on space and time; R.Sorabji "Time, Creation and the Continuum" (1983), esp. part I on the reality of time; also, W.O'Neill "Time and Eternity in Proclus" *Phronesis* 7 (1962) p.161-5; E.Sonderegger "Simplikios zur Zeit" *Hypomn.vol.70* (1982); P.Hoffmann "Iamblique exégète du Pythagoricien Archytas, trois originalités d'une doctrine du temps" *Les Etudes Philosophiques* (1980) p.307-23; J.Moreau "L'espace et le temps dans philosophie antique" *Revue Synth.* 91 (1970) p.205-19; and articles in "Motion and Time, Space and Matter" ed. P.Machamer and R.Turnbull.
- 2 In *Tim.I* 161 ff.
"Active" Space, Iamblichus' theory, see Simplicius In *Phys.* 639-40, In *Categ.* 361-64, is mentioned In *Tim.I* 164, 22-5; it is supposed to be an "incorporeal cause" which sustains bodies with life and contains all extension, not, as Proclus' theory, a corporeal extension; however, it seems that, the Proclan Space is "active" qua the "organon" of the World Soul; so, Iamblichus' incorporeal cause would, in strict terms, be the World Soul itself qua incorporeal "dunamis" in the Proclan Space qua corporeal extension.
- 3 For the above subdivisions, eg. In *Tim.III* 19, 26; *III* 28, 1ff. . *III* 32, 10; also *El.Th.* 51, 53, 54, 55.
- 4 *Pl.Th.V* p289 (Portus), also In *Tim.III* 27, 53, 54; cf. Simplicius In *Phys.* 795, 4-26.
- 5 Chronos as Cronos, In *Tim.III* 187, 21; In *Crat.* 59, 15 where it says that according to the Orphics, the first cause of all is called Chronos(Time), being almost (schedon) the same in name as Cronos. Also see note 4 on Eternity as god, I.B.2.
- 6 *El.Th.* 191.
- 7 Also see Dodds, *The El. of Th.*, notes for *El.Th.* 51-5, p.227-9; and *El.Th.* 48, 49, 94, 198.
- 8 For the following subdivisions, In *Tim.III* 53 ff.; in In *Tim.II* 100, 4, the cosmos is described as "enchronos" just as time is "enkosmios".
- 9 In *Tim.II* 289-90; In *Rep.II* 11, cf. *El.Phys.* p30, definition 13, "Time is the number (arithmos) of motion of the celestial bodies, cf. Aristotle de *Caelo* 279a 15, "time is the number of motion".

- 10 Just as the World Soul is the encosmic monad, as it were, of souls. So, the World Soul is the active cause resident in and immanent in the World Space and Time.

- 11 Notwithstanding the description of Time as "spiral", see note 5 I.B.5.2; the periodic, "circular" character is restored however, with the title "cyclo-spiral" (kukloelikton), In Tim.III 20,25, lit. "twisting in a circular fashion", can be also transl. as "revolving in a circle"(see Orphica Hymni 8,11; and Or.Chald.199), although, I think my trans. brings out better the relig. and astron. background.

8. THE PHYSICAL WORLD

8.1 THE CELESTIAL BODIES

In Proclus' system the celestial bodies are the constituent members of the "encosmic", in-the-world (enkosmios) order of divine henads (the only other entity which would also be both encosmic and "divine" is the World Soul). They are the last in the chain of entities with a divine henad, which has its source in the One and proceeds through the modes of existence of Being, Life, Intellect, Soul and Nature, to Body. Thus each celestial object has a unity, a henad, which in their case is self-constituted, "divine", a self-constituted being and life, an independent intellect, a self-complete principle of motion, soul, and an everlasting, physical body. Strictly, the Greek term "ouranios" is meant to denote all the above qualities in one, each celestial object being - like every individual in Proclus' scheme - a unique bundle of qualities, therefore, it is mildly incorrect to translate it as "heavenly body" because it puts undue emphasis on "body". This is particularly inappropriate for his theory because the body is only the inert, passive, albeit the visible, part of the whole individual, and because the celestial object is primarily a "divine" self-determined entity, rather than merely a body like a stone.

A distinctive feature of his celestial theory is that he rejects the Aristotelian fifth Element, Aether, for the substance of the celestial bodies, and instead retains and develops the Platonic four Elements, whose properties he modifies in accordance with his system (see II.B.3).

He also retains the idea that the celestial bodies move by themselves through the action of their own principle of self-motion, the soul, although in his theory, the concept of self-motion in free space is more firmly established. Moreover, it is embedded in his Neoplatonic philosophy, in particular, the dynamic process of

"remaining-proceeding-returning" and the property of self-constituted existence.

Proclus' theory of the celestial bodies is examined in more detail in Part II, Section B.

8.2 CELESTIAL ATTENDANTS AND SUBLUNARY INHABITANTS

These are the physical entities, except for the celestial bodies. Generally they are characterized and classified by their souls, the immanent active principle, rather than by their bodies, so, for example, the humans are hierarchically "lower" than the celestial attendants, the "daimons", because of the kind of soul immanent in them. Of course, this does not apply to inanimate objects, which are classed "lower" than the "living", because of the lack of qualities.

"Daimons" (daimones), perhaps better translated as "guardian spirits", or better still "alloted powers", is an all-inclusive group of entities, who serve as the immediate attendants, guardians (opadoi, phrouroi) of their "leading" divine celestial object. Collectively, they act as the intermediaries between the celestials and the sublunaries. They are responsible for conveying and pluralizing the characteristic property of each celestial individual to the "suitable" sublunary inhabitants, be they humans, animals, plants, or inanimate things. In this respect they represent the divine element which exists even in the lowest of things, and are a link with the divine causal-entities themselves, such as the celestial objects, but also, it seems, with others still higher (eg. those of Nature or Soul).¹

Belief in the existence of such entities was widespread and uncontroversial, another common title-expression for them was "our betters" (kreittones, kreittosin hēmōn).²

In Proclus they are divided in three groups, according to function: the "messengers-angels" (angeloi), which manifest the peculiar property (idiotēs) of their "leading" god, the "daimons proper" (kath' hauton daimones), which bring the said property into the multitude of the world by procession, and the "heroes", which preside over the return and the elevation to the appropriate divinity.³

The inhabitants of the sublunary realm of "generation" are arranged according to hierarchical value as follows:

As an intermediary between the divinities in heaven and the terrestrials he mentions the "emnead of gods" of Plato Tim.40E-41A, whose status he adjusts by calling them, daimons who have the form of gods.⁴

Next should be the so-called "uncontaminated" (achrantoi) and "incorruptible" (ou kakunomenei) souls. They seem to belong to the "occasional attendants of gods" (pote opadoi theōn), by contrast to the daimons which are "always attendants" (aei opadoi). These souls are said to be "descended" (kation) into generation, meaning proper residence on earth. Rosán suggests (The Phil. of Proclus, p.180) that these might be Proclus' equivalent of the avatars or bodhisattvas.⁵

Ordinary humans are next, since they (their souls) may descend right down to Tartarus. Humans still have all the qualities afforded by the "higher" hypostases, although the human soul is said to be a mixture of "immortal" (athanaton) and "mortal" (thnētē) natures. The immortal constituent is the rational soul (logikē psuchē), with its companion body the "luminous", "astral" vehicle, and the mortal is the irrational soul (alogos), with its own "pneumatic" vehicle. Interestingly, Proclus seems to employ metallurgical-alchemical phraseology in describing the "fusing together" (suntēxis) of the natures.⁶

Animals (zōa, aloga) are assigned an irrational soul only. Proclus classifies them into the traditional (and Platonic) categories "flying" (ptēna, aeropora), "aquatic" (enudra), terrestrial (peza, chthonia).⁷

Plants (phuta) are said to partake of life, although the kind of life they have is only an "image" (see independent vs dependent

properties, I.A.1).⁸ They do not partake of intellect.

Finally,^{there} are the inanimate things, which include those which can be melted, the metals, and those which cannot, such as stones and minerals. They are simple corporeal entities without intellect or life, but with only "being", an "image" of being at that. Yet, they are frequently mentioned in connection with bearing the "symbol" or mark of a god. Such references describe their astrological and theurgical function (cf. the discussion on the "daimonic" class, and on the role of the "image" in I.A.1). With respect to the formation of metals, Proclus mentions various processes with a strong astrological content: they form either as a result of the solidification of the celestial emanations (*sumpēknōsis*) or as a result of seeding (*phuetai*) by the celestial bodies.⁹

NOTES ON I.B.8.2

- 1 For the status of "daimons" in Proclus, eg. In Tim.III 152-161, III 165-167, In Rep.II 71-2, In Alc.31, 32, 40, 90. Most of the daimonology in the later ancient thought is derived from the Middle Platonist Plutarch, see in Dillon op.cit. although in Neoplatonism there was a trend towards a more philosophical interpretation of them as "principles" or "powers", cf. Plotinus' Enn.III 4, with Iamblichus' De Myst.I 6, IX 6-9, and Proclus, above.
- 2 Eg. In Tim.III 258; also in Aristotle de Anim.II,3 414b 15, the "timiōteron" beings to man.
- 3 For the tri-partite division of the daimonic class, eg. In Tim.III 165. Cf. Iamblichus four-fold division, three corresp. to the "angels", "daimons" and "heroes", and one to the "achrantoi" souls, see Dillon "Iamblichi " op.cit.p.48-52.
- 4 In Tim.III 167,25-30; cf. El.Th.139, that the celestials are the last divinities.
- 5 In Tim.III 259,10-30, cf. I 131-2; also see note 3, above. However, these may not be necessarily the "bodhisattvas" as presented in Dillon "Iamblichi " p.243-4.
- 6 An extensive account of Proclus on the human soul can be found in Rosan op.cit. p.194-216, and in Beutler's Proklos (Pauly-W.) p.234-240; for more detailed studies, H.Blumenthal, eg., "Some problems about body and soul in later pagan Neoplatonism" Jahrbuch für Antike und Christentum 10 (1983), p.75-84. "Partial" soul, In Tim.II 228; "alloy mixture" of mortal and immortal; In Tim.III 321, 246ff.
- 7 Eg. In Tim.III 196, 230, III 110-112; but also mermaids II 208,10 and dragons II 202,25.
- 8 As living things, In Tim.III 196, 239; cf. Pl.Th.III 22-25.
- 9 On the metals, see In Tim.I 43, III 321, and the Proclus frg. in Olympiodorus In Arist. Meteor. p.266-7. That they are "solidifications" is, as Olympiodorus points out, both Platonic (solidif. of the Water Element, Tim.59AB f., "metal"= meltable) and Aristotelian (solid. of "vapour", the moist of the two evaporations Meteor.III 6, 378a ff.) theory. The ref. to being "planted" or seeded, can most prob. traced to the Stoic concept of seed-principles (see I.B.6). However, in both cases the causal role of the celestial bodies is central, unlike the theories of origin. For a full examination of the ancient theories on the metals, see R.Halleux "Le problème des métaux dans la science antique" (1974) with a section on the astrological and alchemical ramif., p.149-160, where Proclus' In Tim.I 43, and the Olymp. frg. are extensively mentioned. Also see the classic work, R.P.Multhaus "The origins of Chemistry" (1966), and F.S.Taylor "A survey of Greek Alchemy" J.H.S.50 (1930) p.109-139.

8.3 CAUSE AND EFFECT IN THE MATERIAL WORLD

Predictably, Proclus follows the long-established view that in the sublunary domain all entities are in a continuous process of change (metabolē); this is the realm of "generation" (genesis) where everything comes into being and then perishes away.

At this level of existence, causes and effects are no longer in a "stable" and eternal relationship, as they were, for example, among the intelligibles, but are in a temporal-temporary and mixed mode (miktos, summiktos).¹ The incorporeal causes are embroiled in and mixed with body and matter; soul, for example, acquires "material garments" (see II.A.4.4). The material of the bodies is also a mixture, and the Elements themselves are mixtures in a state of constant flux.² Matter itself is of course in a disorderly and mutable state of agitated motion (plēmmelēia, ataktōs); this is the "gross" and "unstable" matter (pachutatēn hulēn, anedraston), which is a mere shadow of the stable substrate-matter, the "receptacle of the universe" (as interpreted by Proclus) pervading through all the modes of existence (see II.A.6 and II.B.3).

Because of this state of constant change, every effect is largely due to a "concurrence" (sundromē) of several contributing factors, acting at the appropriate time (kairos) on the suitable entity (epitēdeios) at the appropriately allotted place (klēros chōra). Each concurrence is subject both to the principle of sympathy, the rapport and equiponderant relation between the participants (logos, summetria), and the principle of "fitness" or "suitability" (epitēdeiotēs).³

Since all causal power originates ultimately in and by the self-constituted entities, the "divines", and the self-constituted entities closest to the sublunary, material world are the celestial, then, the sublunaries are mainly governed by (or through) the celestials.⁴ The general principle underpinning this link is that

"all is in all, but appropriately in each", especially in the form of independent and dependent, "image" participation. Each independent has its own unique character (*idiotēs*) which is distributed among the non-independents, so that every thing, however lowly in the hierarchy, is "allotted" (*elachen, klēros*) an appropriate sign-ature (*sunthēma*) and image of the independent's peculiar property.

The nature of the result emerging from the concurrence of many causes is determined by: (i) the place, (ii) the time, and (iii) the thing itself. Furthermore, for Proclus, all these factors, including perhaps (iii), need not be permanent. Some change constantly in the ordinary run of things, even the divine "allotment" may itself be of certain duration, while others can be prompted⁵ to change by those who know the 'what' and 'how'. It is a characteristic feature of Neoplatonic thought that the link between gods and men is not entirely asymmetrical.

NOTES ON I.B.8.3

- 1 In addition to being a mixture of limit-unlimited, eg. In Tim.I 410,11-19.
- 2 Cf. In Tim.II 26; ex. Plato's Tim.49B ff. and the doctrine of Becoming, also see Part II the Section on the Elements. For the 'Heraclitan' "everything is in a state of flux" see Simplicius In Phys.1313.
- 3 Eg. In Tim.I 140, 163-4, 392; II 63-6; In Rep.II 266, 269, 303-4; In Parm.916.
For the important concept of "suitability", E.R.Dodds The El.Th, op.cit. p.344-5 of his addenda .
S.Sambursky's view that the concept of "suitability" is an example of "mechanical-mindedness" in Late Antiquity with special ref. to Philoponus' usage, has been criticized severely by scholars of ancient philosophy for, in essence, taking it out of its context within ancient philosophy.
S.Sambursky, "Conceptual developments" in "Scientific Change" edit. A.C.Grombie (1963) op.cit. esp. p73-4; and "The physical world of Late Antiquity" pl04-9. For the criticism, G.E.L.Owen comm. on Sambursky's paper in "Conceptual developments" p.97-8; and the excellent art. by R.B.Todd "Epitēdeiotēs in philosophical literature: towards an analysis" Acta Classica 15 (1972) p25-35, which traces Philop. usage of "fitness" to non-technical termin. or at least to a technical usage supplemental to the Aristotelian potentiality, not an alternative.
In relation to the Stoic theory of causation, see R.Sorabji "Necessity, Cause and Blame" p.64-5, 78-9. "Fitness" or "disposition" is also linked to the development of occasionalism in the Islamic philosophy of Ghazali (11th c), cf. Sorabji "Time, Creation and the Continuum" chapter 19.
- 4 Eg. In Tim.I 139-40, II 200-2; Pl.Th.VI p352; cf. In Rep.II 13 and In Rep. refs. of previous note.
- 5 That the various factors can be subject to change, In Tim.I 145; see also E.R.Dodds section on theurgy in "The Greeks and the Irrational" (1951) p.291-311.

8.4 THE FOUR ELEMENTS

Proclus' theory of the Elements is solely of the four Elements: he categorically rejected Aristotle' fifth Element, Aether. His solution to the problem the introduction of the fifth Element was meant to address, namely, the difference between the imperishable celestial and the perishable sublunary realm, is based on the principle that "everything is in everything but appropriately in each". According to it, the traditional four sublunary Elements are only just one of the many cosmological modes of the four Elements, a notion consistent with and embedded in his general philosophy.

He retained the Platonic geometric or quantitative conception of the Elements, which he developed in a way that was intended to be an advance on the Aristotelian theory of two qualities per Element, and which he perhaps regarded as the final replacement it.

Very briefly, the particles of Fire, Air, Water and Earth are defined by their characteristic Platonic regular polyhedra, which, in turn, are defined by the "atomic" triangles. These allow inter-transformations from one Kind (viz. Element) to another. During these processes there can exist, according to Proclus, half-formed particles. That such "intermediate" states of the parts of matter are allowed to exist, emphasizes their proximity, in hierarchical terms, to the completely indefinite matter.

Proclus' theory of the Elements is examined in more detail in Part II, Section A.

8.5.1 BODY

Body (sōma) is the last mode of existence in Proclus' system. "Of all the kinds of being (ontōn hapantōn) the last one is the corporeal (eschaton esti to sōmatikon); for it derives its existence and completion (to einai, tēn teleiotēta) from other older and higher (presbuteras) causes, and is allotted from its own proper power neither simplicity nor complexity of composition (oute to haploun oute to suntheton), and, neither perpetuity nor indestructibility (oute to aidion oute to aphtharton). For no body is either self-constituted or self-generated (ou authupostatōn oude autogenes)" (57).

Therefore, Body is not a proper cause-attribute, like intellect or soul for example, but is only a "participant". It is not a "participated" property, since there is nothing else which can participate in it. Body is the last production of the Creator (see I.B.4).

Body is also called "the substrate of ensouled existence" (hupokeimenon tēs psychōseos)¹, which is of course in accordance with the designation of body as the "material vehicle" (hulīaion ochēma) and the "shell" of soul (Plato Phaedrus 250; also the expressions, "tomb" and "prison" of soul).

It is in this capacity as substrate, that Body is intimately linked with Matter, for Matter is "the substrate of all things" (hupokeimenon panton). Nevertheless, there are hierarchical differences between them. Since body is composed of matter and invariably has a certain form or shape, then, Matter, which can be formless, is "lower" still. Whereas pure body in Proclus is identical with shaped three-dimensional spatial extension (see II.A.6), pure matter is simply a power-to-receive, a substratum without any other definition or quality.

8.5.2 MATTER

Overall, Proclus does not wish to distinguish two kinds of matter, one intelligible and one sensible. He prefers, instead, the concept that matter is an aspect of one single, indefinite power, extending through all the modes of the universe²(see I.B.1.2).

His theory of matter is based on the ontological principle that the "higher" the causal property, the more unified and the more "powerful" it is (see I.A.1). So, the universal causes of Unity in tandem with Being extend as far as to simple bodies, such as stones, whereas the more specific causes of Intellect or Soul, for example, "irradiate" only as far as to the living creatures (see I.B.intro.). Body is the most "basic" of things to be "irradiated" by Being, while Matter, pure matter, the most "basic" of things, can only be "irradiated" by Unity.³

The relationship between the active, predicating causes, and their bases, the substrates, is related as follows:

"All the characters which in the primary causes have a higher and more universal rank (holikoteran kai huperteran taxin) become in the resultant (apotelesmasi) entities, through their irradiations (ellampseis), a kind of substrate (hupokeimena pos) for the participation-communication (metadosesi) of the more specific causes; and while the irradiations of the more superior causes receive (hupodechontai) the processions of the secondary causes, the characters of the secondary are established upon them. Thus there is an order of precedence (proēgountai) in participation (methexeis), and different imprints (emphaseis) fall upon the same substrate-base, the more universal affecting first (proenergounton), and the more specific supplementing these with the bestowal of their own characters upon the participants (tois metechousin)" (58).

So, "all the characters, which in the participants have the relative position(logon) of a substrate, proceed from more complete

(teleiōterōn) and more universal causes (holikōterōn aitiōn)" (59). In effect, as A.C. Lloyd perspicuously put it, the hypostases are held in their place by their own bootstraps.⁴

Matter is described in approximately three ways:

(i) Matter as the simple, universal substrate complementary to the One cause of the universe.

"For we do not say that there are many kinds of matter (kan pleious hulas) of the universe, but that there is one kind of matter starting from above (anōthen) and proceeding downwards (di' hupheseōs) till the very last sediment (hupostathmēs), which is indeed formless (ontōs aneideon; shortly before, Proclus called Matter, undifferentiated and qualitless)" (60). "For the last of beings is, like the first (hōsper to prōton; viz. the One), most simple (haploustaton), because it proceeds from the first alone (apo monou tou prōtou); the one is simple as being above (kreitton) all composition, but the other as being below (cheiron) it" (61).

(ii) Matter as a potential, a power-to-receive

"The associates of Plotinus frequently point out, that Being is composed of form and intelligible matter (eidous, hulēs noētēs), and correspond the form to the One and the Existence (to heni kai tē huparxei), and make the power (dunamin) analogous to matter. If this is what they mean, they are correct; but if they attribute to the intelligible essence some nature without shape (amorphon), form (aneideon), or limit (aoriston), I think they lose sight of the Platonic intention" (62). "'Matter is potentially all' (Arist. de An.III 5, 430 a 10-11), since it is given subsistence by the first potency (prōtēs dunameōs). But that is the generating power of everything, whereas the power of matter is incomplete (hulēs dunamis atelēs) and is in need of the subsistence of every actuality" (63).

(iii) Matter as a mode of infinitude, and to a degree "good".
"If bodies are made of limit and unlimited (ek peratos kai apeirias; cf. quote 25. in I.B.1.2)...it is evident, that matter is an unlimited, and form a limit. If therefore, as we have already said, God (ho theos; in this case, the One) gives subsistence to all the unlimited (pasan apeirian), He also gives subsistence to matter, which is the last unlimited (eschatōn apeirian). And that is the First and Ineffable cause (arrhētos aitia) of matter; and because everywhere the sensibles are analogous to the intelligible causes...likewise, the unlimited which is down-here (entautha apeirian; viz. matter) derives from the first Unlimited, just as the limit which is down-here (viz. form) is from the Limit over-there. For it has been shown elsewhere, that the first Unlimited, which is prior to the mixed existence, is established at the summit of the intelligibles (en tē akrotēti tōn noētōn), and from there it extends (diatēinei) its irradiation (ellampsin) as far as to the last of things (eschatōn), so, according to it, Matter proceeds from the One and the Unlimited which is prior to Being...For this reason, Matter is to a degree good (agathon pē) and infinite, as well as the obscurest and formless being (amudrotaton on kai aneideon), on account that they (viz. the One and prime Infinitude) subsist prior to the Forms and their appearance unto-light⁵ (tēs ekphanseōs)" (64).

Thus Proclus' Matter is essentially power to-receive, potential power, and inasmuch as power is infinite, bound-less, not made-up of discrete individuals since it is not-limit and not-form, then it is indeed continuous and simple through all the modes of existence.

However, Proclus seems to differentiate between matter as a universal substrate, and the mass-matter of the sublunary domain. The latter is the "most-gross" matter (pachutatēn hulēn; see II.A.6) which is distinguished from the former, the "universal receptacle" matter.

Gross matter is equivalent to: (a) corporeal but formless matter, a purely qualitless quantity, as opposed to matter as an incorporeal power, and (b) matter as the most distant mode of existence from the One, matter at the very end of the hierarchy, as opposed to matter as the unlimited power substrate complementary to and originated by the One.

The distinction appears, therefore, to parallel that between Plotinus' intelligible and sensible matter, although for Proclus, it is that between the fundamental nature of Matter itself and one, the very last and weakest, of its modes.

8.5.3 MATTER AND THE INVERSE HIERARCHY

A paradoxical development arising from the application of the general principle that the more universal cause is more powerful than the more specific (see I.A.1) is, that some entities in the "lower" ranks of the hierarchy can no longer be "effects" of the more universal as well as the more specific causes, but only of the more universal.

So, the hierarchy seems to proceed initially from simplicity to complexity, until the mode with the maximum number of qualities in its bundle, and subsequently, from complexity to simplicity. The first simplicity is the One, and the last, Matter.

The precise character of the inverted part of the hierarchy depends on which mode of existence is defined as the most complex. It, in turn, depends largely on the precise role of soul and nature in relation to body, as L.J. Rosán observes in his account of what he calls the "second class of effects", viz. those of the inverted hierarchy (the Phil. of Proclus, p.190-1). If the contemplative role of soul is emphasized and nature acts as the "physical" cause of change, then, man will constitute the most complex being, while animals, plants and the inanimate things, such as stones and dead bodies, will be successively simpler (see I.B.8.2). But, if soul retains the "principle of motion" as well, with nature acting merely as an auxilliary, then, everything subject to change-motion will still be the most complex of things, and the inversion will not commence until body considered in itself.

Of the two, the first is considerably better documented in Proclus than the second, and moreover, forms of it seem to have been already subject to discussion.⁶

E.R. Dodds commented (Proclus' El. of Th. p.232-3), that this paradoxical simplicity at the lower and material end had also been noticed by Plotinus (Enn.VI,7,13 "the lower is similarly simple

because of a fading-out of characteristic"), although it was Proclus who was first able to provide a theoretical explanation for it. It also accounted for the unsettling fact that both the hierarchically superior celestial bodies and the inferior terrestrial, inanimate bodies exhibit a simpler motion than that of the hierarchically "between" terrestrial living-beings. "For if we want to examine these things, we will observe that everywhere those at the extremes (ta akra; in hierarchical terms) are more simple (haplousterā) than those in the middle (tōn mesōn) which are more complex; so, for example, we see that nature and matter are more simple than body, and the irrational life and intellect than the rational soul (cf. I.B.intro. quote 19.). But, whereas the intellect is more simple by being higher in degree of excellence (kata to kreitton), the irrational is simple by being lower (kata to cheiron); for it lives without deliberate choice (aproairetōs; ie. in want of volition, contra the celestial bodies which move by their own will and power, see II.B.6.3) and conformably to nature (kata phusin). If therefore with respect to motion, we see that both the divine living-beings (ie. the celestial bodies) and the inanimate bodies have a more simple motion, but those in between wander and move in various and many ways, what is there to wonder at? For the simplicity of the divine movement is above (kreitton) the complexity of the mortals, but the simplicity of the inanimate is below (cheiron)" (65).

Dodds concluded that dead, inanimate bodies do appear to be closer to Unity than souls, which, he said, is consistent with the importance attached to them in theurgy. R.T. Wallis ("Neoplatonism" p.156-7), who followed Dodds in this, remarked further that the inverted hierarchy would make it easier for man to contact divinity and the One via material objects. Yet, he admitted that there is no explicit evidence of this in any extant text.

I suggest that this lack of evidence is not at all surprising, because the above extrapolations are singularly incompatible with the fundamental Neoplatonic view of re-unification by the ascent

of the soul (as in Plato's Phaedo and Phaedrus). Contact with a divine henad via material objects would have constituted the descent of the theurgist's soul in the underworld, the Tartarus of matter, and the descent into darkness, instead of the ascent to light.⁷

Crucial to this point at issue is an appreciation of the role of the independent and dependent participated attribute (see I.A.1). The dependents only display a shadow of the participated property. The independents, or self-constituted, are the ones which manifest the property proper, since they proceed immediately from the unparticipated, monadic cause. Hierarchical causation proceeds via successive unparticipated and independent participated causes not via the dependents.⁸ Sublunary entities such as the plants and the inanimate bodies are said to bear only the "symbols" of gods. The accent is always on "gods" (as Wallis subsequently observes), viz. the divine and independent cause, rather than on the "symbol", in other words, on the entities which are like the One in a "maximal" sense (as Dodds put it prior to his statement on the importance attached to inanimate bodies), not on those which are in a "minimal". Contact with divinity takes place via incorporeal and "elevating" powers, although material objects may also be employed, as "symbols" of divinity.

This version of an inverse hierarchy may, however, be undermined by the following objections. Firstly, it may be argued that although there is an apparent simplicity at the lower and material end, such simplicity does not take into account the process of multiplication of discrete individuals: men counted individually are less in number than animals, which in turn are less than plants, and finally all the living things are less in number than all the inanimate. In this way the hierarchical procession from the One to the many is preserved till the very end. Secondly, inanimate bodies and simple living bodies, like plants, although simpler than man and animals are still "bodies" subject to Nature. Therefore, they can never really compare with the entities which are above Nature and Body.

The last objection leads directly to the second version, which acknowledges that every corporeal thing in the material world, which is subject to some form of change, will still be a complex entity, "acted upon" by both universal and specific causes.

Rosán focuses on the second (ibid. p.191), probably because he accepts implicitly the argument against the first. He interpolates a series between Body, as the most complex, and Matter as the simplest in the inverted hierarchy, although, as he forewarns, it is only partly stated in Proclus. Body in itself is thus made to be "under" Intellect qua determinate form, Quantity (*posotēs*) by itself to be "under" Life qua number, Individuality or atomicity (*atomotēs*), Privation (*sterēseis*) and Particularity (*merotēs*) successively "under" Being, and Matter "under" the One.

There are many attractions to this scheme, not least for the scale of "negation" towards Matter, which matches - or simulates - the return to the One by the shedding of qualities. It therefore provides a graded transition from the corporeal and shaped kind of matter to the totally limitless matter, through the atom-like existence of the four Elements (cf. I.B.2, II.A.4.1). In this respect it reveals perhaps the real character of the "inverse" hierarchy, namely, that it is an arrangement of "substrates" by a process of abstraction.

NOTES ON I.B.8.5

- 1 El.Th.72; *ibid.* for Matter as the substrate of all; but also cf. In Parm.1123, where Body is called the "substrate of the universe" insofar as it is as large as the universe.
- 2 For this reason Proclus' theory of procession has been accused of being too materialistic (*sic*), since the same "dunamis" produces the intelligible, the psychical and the material world, M.-L.von Franz "Number and Time" (1974) p.82, note 55 (within the context of Jungian thought).
- 3 See, J.Dillon "Iamblichi" *op.cit.* p.236-7 with a very useful diagram; also, Dodds p247, Wallis p.148-9, 66-7.
That the more "powerful" causes can irradiate further, is yet another example of the physical imagery employed for metaphysical purposes.
That Matter is an "effect" of the One alone. Zeller claimed that both the concept and its development are original to Proclus; notwithstanding Syrianus, it seems that such a notion can also be found earlier, in the 1st c AD Alexandrian Platonist, Eudorus; Zeller "Griech. Phil." III,2 p.869-70, Dillon "Middle Plat." pl27-8. The concept that the One, and the "higher" causes, reach further than the more specific is also linked to other:
the concept of "perfect" and "imperfect" *dunamis*, see I.A.1, also see Pl.Th.Budé edition vol.III, notes complement. on p.34 and p.39-40 of the body text, p.122-3, and p.125 respectively; the exegesis of the "hypotheses" of Plato's Parmenides, see Pl.Th.Budé vol.I *intro* p.lxxx-lxxxvii, Dillon *op.cit.* p.387-9 and p.402, Syrianus and Proclus considered only the first five as representing levels of reality, thus Matter became the last "hypothesis";
the explanation of the existence of primordial motion prior to the imposition of order and form by the Demiurge, the problem from Tim.30A, also see note 5 below, and Dodds p.238-9, 230-1. Matter is also described as "dissimilarly alike" (*anomoios hōmoiōmenē*) to the One, ref. to Parm.159E, a formula expression occurring in Syrianus, and others, see Pl.Th.Bude vol.I, note on p.55, p.144-5.
- 4 A comment made during a seminar on Neoplatonism at ICS in 1980 and subsequently confirmed.
- 5 Here, the darkness of matter is linked to the "abyss" (*abussos*, *aduton*; a "Chaldean" term see Lewy and des Places) of the unknowable First principles and the One; see, Thomas Taylor's comment on the Tim. Comm. vol.I p.324, and Festugière's notes in Comm. sur le Timée vol.II p.247-9. This is in fact a pointer to Proclus' solution of the problematic primordial disorderly motion in Matter: such a state of motion is not due to an evil World Soul, but due to "higher" causes above and prior to the Demiurge himself, also cf. In Parm.842-5 (for the doctrine of evil W.-S. and disord.motion of Plutarch and Atticus, see Dillon "Middle Platon" p.202-6, 252-4

note 5 contin.

(note 5 contin.). Matter "to a degree good" is a snub at Plotinus' association of sensible matter with evil, *Enn.I,8,4*. For Proclus the divine "good" nature reaches everywhere, besides privations of good cannot be causes of evil, *Mal.Subs. p240*; also cf. Wallis *op.cit. p.49-50*.

- 6 Previous kinds of 'inverted' progressions include the simplicity of movement of the fixed stars and the Sun and the Moon, as opposed to the complex movement of the planets, between, Aristotle *de Caelo II,12* (see Loeb ed. with diagram on p.208). I would like to thank R.W.Sharples for bringing to my notice the wider aspects of the debate, see eg., his "Responsibility and the Possibility of more than one course of action, a note on Aristotle *De Caelo II 12*", *ICS Bulletin 23 (1976) p.69-72*. For an exposition of the ancient debate on the subject, see Simplicius *In de Caelo p.482-490*.
- 7 On theurgy and "elevation" see H.Lewy *op.cit. ch.3* and excurs.8 cf. with Dodds' account of the theurgical mode of operation, in "The Greeks and the Irrational" (1951) appx.2 esp. p.291-311, where he stresses the use of "symbols" and other "intermediaries" while almost overlooking the aim of theurgy, viz. "the elevation (anodos) to the intelligible Fire" a quote from Iamblichus' *de Myst.*, which appears at the beginning of the section on the *modus operandi*, but hardly expanded on later. For the position of theurgy in Proclus' philosophy, see A.Sheppard's excellent art. "Proclus' attitude to theurgy" *Classical Quarterly 32i(1982) p.212-224*. On the "Tartarus of matter", Proclus *In Rep.II 183,17-21* describes Tartarus as the *chōros* of all disorderly and obscure matter, contra to Olympus, which is all-shining and most-lofty (cf. *Arist. de Mundo 400a8*).
- 8 *El.Th.110*.

PART II

THE PHYSICS OF THE ELEMENTS AND THE CELESTIAL BODIES

SECTION A. THE ELEMENTS OF THE UNIVERSE.

Introduction.

The development of the 4-Element, geometrical theory of matter in Late Antiquity did not come about solely as a result of the rise of Neo-Platonism and the revival of Plato's doctrines, it was also influenced by other schools of thought which espoused the 4-Element composition of the universe (Stoicism) or promulgated the mathematical view of the cosmos (neo-Pythagoreanism). Moreover, Aristotle's doctrine of the 5th Element had come under persistent criticism even from the early Peripatetics themselves, such as Xenarchus and, perhaps, Theophrastus.

So, with the benefit of hindsight and influenced, in particular, by their conception of a "Pythagorean" Plato, the late Neoplatonists sought to describe the Elements of the universe and the matter, where change takes "place", mathematically, as tri-dimensionally extended entities. However, these were by no means conceived as inert quantities but as the shape and form of the active powers, or qualities, inherent in a dynamical cosmos.

Aristotle's fifth Element was dropped as an unnecessary, ad hoc entity, whose primary role in providing an imperishable substance for the heavens could be filled instead by an exalted, incorruptible and non-destroying sort of Fire.

1. THE PLATONIC BACKGROUND

Proclus' Elements are the traditional four: Fire, Air, Water and Earth.

These originally Empedoclean Elements were meant to be the irreducible primary "roots" of the changeable physical world. They were called "Elements" (stoicheia) from their comparison with the letters, the alphabetical elements. Just as the letters of the alphabet combine to form words, which are used to describe the world, so the elements of the world combine in multiform ways to produce the various entities and phenomena.¹

In the Platonic tradition in particular these "roots" had become associated with the four out of the five "perfect Platonic solids". Geometrically, they are the only regular convex solids inscribable in a sphere. Thus the four "roots" and their associated properties could be represented and explained by the geometrical properties of their "shape" or "figure" (schēma): Fire by the tetrahedron, Air by the octahedron, Water by the icosahedron and Earth by the cube.² The fifth perfect solid, the dodecahedron, was said to have been used up (katechrēsato) for the universe as a whole.³ This opened the way to the subsequent developments leading to a fifth Element or state being ascribed to the heavens.

The Platonic primary bodies were not totally indivisible and absolute "atoms" in the Atomist fashion. Firstly, the solid bodies were determined and bounded by plane surfaces, the faces or bases (hedra) of the polyhedra and secondly these plane faces were said to be composed of plane triangles.⁴ Still further, Plato recognized that only 2 types of plane triangle were sufficient to build up the faces of the 4 solids: the rectangular scalene (sides in ratio of $1:3\frac{1}{2}:2$), and the rectangular isosceles (sides in ratio of $1:1:2\frac{1}{2}$). These were the true Platonic irreducible "elements".⁵ The first type of these elementary triangles was used for the construction of the triangular faces of the tetrahedron (Fire), the octahedron (Air) and the icosahedron (Water), whereas the

second was used for the square faces of the cube (Earth).

The number of these basic, elementary triangles per face per polyhedron determined the size of the corpuscle of each Element. Firstly, with the triangles of all the polyhedra assumed to be of the same size, the size of each polyhedron (except the cube) would be directly proportional to the number of its faces. So for example, by such reasoning, Fire's tetrahedral corpuscle with 4 faces would be smaller than Water's icosahedral with 20 faces. This size-factor affected the relative mobility, penetrability and the weight of the corpuscle. So compared by size alone, Fire would indeed be more mobile, more penetrating and lighter than Water.⁶ Secondly, by varying the size of the faces through the multiple addition of triangles the size of the same Element-polyhedron could vary and yield differently sized corpuscles for the same Element. This is because the size of each face is directly proportional to the number of the basic triangles that combined to form it. This size-factor had a similar influence on the properties of a particular Element. For example, aetherial Air (least no. of basic triangles per face=smaller faces=smaller octahedron) as compared to the misty and dark Air (larger faces=larger octahedra).⁷ The size variable assumes an added significance in Proclus, where such size-determined properties as inertness or mobility, thickness or tenuity etc, are associated with the state of materiality of a thing.

The kind of angle formed by the faces of the polyhedron determined the penetrability (and indirectly the mobility) of each Element. The angle to which Plato seems to have been referring is the solid angle formed at the corner of the polyhedron - the vertex - by the surrounding faces.⁸ Plato considered this polyhedral angle to be acute for the tetrahedron but obtuse for the rest.⁹ This angle variable especially differentiated Fire from the other Elements and accounted for a family of penetrability-related faculties or qualities. For example, the dissolving faculty, which affects the transformation of the Elements, and the "cutting" quality

of heat.

Plato therefore accounted for the characteristic properties of the Elements by using: the size, the angle, the type of triangle which constituted the face, and the type of face of each polyhedron.¹⁰ So for example, Earth's inertness or preponderance to remain stable or stationary was attributed to the all-sided stability of the isosceles triangle, which composed the square faces of the cube (ref. to what we now call centre of gravity). Furthermore, the square faces or bases themselves were considered as more stable than the triangular ones of the other polyhedra.¹¹ So Earth as a cube was the hardest to move from its place of equilibrium (cf. Tim 63A Earth as a body in equilibrium at the centre of the universe). On the contrary, Fire's readiness to move was explained by the overall instability of the scalene triangle (presumably because it has unequal sides) and the triangular faces of its polyhedron. Its penetrability, as already mentioned, was chiefly accounted for by the acuteness of the angles.

Plato's composite polyhedral corpuscles of the Elements also accounted, in a distinctly un-Atomist fashion, for the transformation of one Element into others as witnessed by various phenomena, such as boiling (Water into Air mainly) etc, in the world of continuous change, the realm of "generation" (genesis). This was allowed through the interchangeability of the triangles; specifically, through the scalene triangles of Fire, Air and Water. These did not have any inherent quality which branded them as exclusively fiery, airy or watery, since such qualities were due to the overall shape of the polyhedral solid. Therefore, during a transformative process the polyhedra were thought to dissolve into the constituent triangles which would then rearrange themselves into new polyhedra-Elements.¹² Only the rectangular equilateral triangles of Earth's cubes were excluded from participation in such transformation, being geometrically incompatible with the scalene. Earth, therefore, as a pure Element, could not be transformed into any other Element;¹³ nevertheless Plato allowed it to exist in a state of fusion with other Elements, usually Water.¹⁴

In this manner, the only primary quality of the Platonic Elements was "shape" or "figure" (plus the self-moving power, which was inherent in all generation)¹⁵ Specifically, it was the shape of one appropriate polyhedron for the corpuscle of each of the 4 Elements. This, in turn, was ultimately dependent on only two principal (archai) types of plane triangle. The "perceived sensations" of heat, liquidity, bitterness, smoothness, smell, etc., (see Tim. 61c-68d) were secondary, since they were derivable, in a fashion, from the geometry of the polyhedra.

This is essentially the geometrical or quantitative Element theory of the Platonic School, which was held dear even by possibly the very last of the "Successors", the 6th c. Neoplatonist Simplicius, as it is evident in his introduction to Proclus' own arguments against the objections raised by the rival theory of Aristotle, the more famous and more influential qualitative theory of hot-cold, dry-moist, light-heavy. "Plato seeks for the origin of the 4 bodies, Fire, Air, Water and Earth in other principles (allas archas) more fundamental than the ones derived from the qualities of heat, cold, dryness and moisture, namely from the differences in quantity (en tō posō diaphorōn), since quantity is more closely related to body (sungenesterōn ousōn pros ta sōmata). This is evident from the fact that he accounts for the differences of those qualities by the difference of the shape (schēmatōn diaphoras)" (1).

NOTES ON II.A.1

1 For the Empedoclean background see, eg., J.J.Longrigg, "The Roots of all things" *Isis* 67 (1976) p.420-38. For the Elements as the ABC of the universe, "stoicheia tou pantos" in Plato, the main text ref. is, *Theaetetus* 201E-205, also *Timaeus* 48B; for an important analysis of what constitutes a "letter", "syllable" and a "word" in Plato's theory of the Elements see A.E.Taylor "A Commentary on Plato's *Timaeus*" (1928) p.306-9.

2 Plato's theory of the Elements, *Timaeus* 47E-69B. There are a number of studies which examine the various aspects of it, from the geometrical to the epistemological: the 'classic' works are, A.E.Taylor, "A Commentary on the *Timaeus*" (1928), and F.M.Cornford "Plato's *Cosmology*" (1937); they are rich in comments, notes and references covering in length virtually every detail of Plato's cosmological thought; for the Elements in particular, Taylor p.305-491, Cornford p.160-239. To these may be added, P.Friedlander "Plato" vol. 1 (1958) with a number of important diagrams on Plato's theory of the Elements, and G.Vlastos "Plato's Universe" (1975), with ref. to the Elements, the part on Plato's theory of the structure of matter and appx. N; also C.Mugler "La physique de Platon" (1960)

For the geometrical foundation of the Platonic Elements and the theory of transformation see also, P.Friedländer "Structure and destruction of the Atom according to Plato's *Timaeus*" *Univ. of California Publ. in Philosophy* 16 (1949) p.225-248; E.M.Bruins "La chimie du *Timée*", *Revue de Métaphysique et de Morale* 56 (1951) p.269-282; G.Vlastos "Plato's supposed theory of irregular atomic figures", *Isis* 58 (1967); W.B.Pohle "The mathematical foundations of Plato's atomic physics", *Isis* 62 (1971) p.36-47, and W.C.Waterhouse "The discovery of the regular solids", *Archives for the History of Exact Sciences* 9 (1972) p.212-221.

For the more philosophical aspects, R.J.Mortley "Primary particles and secondary qualities in Plato's *Timaeus*", *Apeiron* 2i (1967) p.15-17; W.Pohle "Dimensional concepts and the interpretation of Plato's physics", *Phronesis* suppl.1 (1973) p.306-323; F.F.Centore "Atomism and Plato's *Theaetetus*", *Philosophical Forum* 5 (1974 publ.1975) p.475-485. Most of these refs are also relevant to the next chapter .

3 On the fifth solid, *Tim.*55C; the identification with the twelve signs of the zodiac and the heavens is late Platonic, and is prob. linked to the five-fold division of the *Epinomis*.

4 The construction of the four solids, *Tim.*53C-55C; see Taylor *op.cit.* p361-380 and Cornford *op.cit.* p210-239.

- 5 "archai", the two types of triangle as the "elements" meaning the ultimate principle in a reductive process, Tim.53D, 54DE, 55B; see Taylor, above, and the ref. on the the "letter" etc of Plato's Elements; also, H.J.Folse "Platonic atomism and contemporary physics", Tulane Studies in Philosophy 27 (1978) p.69-88, who points out that the polyhedra are not supposed to be concrete material atoms, but are the forms of the Elements in the context of describing processes in a constant state of flux. However, it is also best to keep in mind the distinction between the Elements as the four Kinds in the Universe, and the "elements" as the particle-"seeds" of the four Kinds. On the role of the equilateral triangle in the construction of the Fire, Air and Water polyhedra, also see R.Falus "L' enigme du 'plus beau triangle'", Acta Antiqua Academiae Scientiarum Hungaricae 26 (1978) p.405-422.
- 6 Tim.56B.
- 7 On aether and air, and size of corpuscle, Tim.58DE, and Taylor's notes p.411-12.
- 8 Tim.54E-55C, cf. 56A.
- 9 According to Plato's account, as Taylor points out p.375, the solid angle of the Fire-tetrahedron is equal to 180° (not 179° as in Bury's footnote, in the Loeb edit, p.132), and so the others must be more.
The solid angle as described in the Tim. is geometrically known as "tri-hedral", which, by definition, is : for Fire's tetrahedron, 3 plane-angles of 60° each equals 180° ; for Air's octahedron, 4 plane-angles of 60° each equals 240° ; and for Water's icosahedron, 5 plane-angles of 60° each equals 300° ; all of which confirm Taylor. But in my opinion, the appellations "acute" and "obtuse" seem to apply more appropriately to the di-hedral angles of the edges of the each polyhedron, which for Fire are indeed - according to the definition of dihedral angle - "acute", being less than 90° , whereas for all the others, are "obtuse", being more than 90° . Earth, according to Plato, does not participate in this scheme because of the different constituent triangle; trihedral angle is $3 \times 90^{\circ} = 270^{\circ}$, and dihedral, 90° , ie a right angle.
- 10 However, as Taylor shows, p.380, the size-factor alone would be sufficient in accounting for the differences in the properties of Fire, Air and Water, as explained in the Timaeus.
- 11 Tim.55E.

- 12 Tim.56E ff. This has been the basis for regarding it as the chemistry of the Timaeus, where the polyhedra act more appropriately as molecules, and the triangles as atoms, their number being more or less conserved through the transformations.
- 13 Tim.56D
- 14 Tim.60B-D.
- 15 For the self-moving power inherent in generation cf. Tim.89, Laws X 895, Phaedrus 245.

2. THE 15 ARGUMENTS

The so-called 15 Arguments or Objections (enstaseis) of Aristotle against the Timaeus were part of Aristotle's wider criticism of the quantitative Element theories in favour of his own qualitative one. The whole passage de Caelo III 305^a₃₃-307^b₂₆ includes criticisms against the Empedoclean, the Atomist of Democritus as well as against the Platonic theory (the Platonic in particular de Caelo III 306^a₁-307^b₁₈). The arguments against the latter clustered around the problems of constructing physical elementary corpuscles from geometrical plane figures, the triangles, and around the difficulties of deriving contrary qualities such as hot and cold from similar geometrical shapes.

Proclus' counter-arguments, which are found in Simplicius' Commentary on Aristotle's de Caelo, were part of a more extensive criticism, or counter-criticism, of Aristotle's physical views. Fragments of this treatise survive in the Aristotelian Commentaries of Simplicius "in de Caelo" & "in Physica" and in Philoponus' "de Aeternitate Mundi contra Proclum".¹

Proclus' responses are important not only for the study of the development of the debate Platonism vs Aristotelianism, nor just for the examination of the degree of his adherence to the original Platonic doctrine, but also for the investigation of Proclus' physical conceptualization in its own right.

The 15 Arguments can be divided into four thematic groups:

1. The arguments concerning the exemption of Earth from the processes of transformation (Arg. 1 & 2).
2. The arguments about the formation of void-gaps between the polyhedra (Arg. 6 & 8).
3. The arguments about the derivation of qualities from the geometry of the polyhedra (Arg. 9,10,11,12,13,14,15).

4. The arguments directed at the "shape" of the polyhedra (Arg. 5 & 7) and at the fundamentals of the Platonic theory, viz. the plane triangles (Arg. 3 & 4).

1. One of the consequences of the triangular structure of the polyhedra, in Plato's theory, was that Earth did not have the same elementary triangles as the other Elements and therefore could not participate in the cycle of transformation. The Aristotelian objections against this were twofold:

- (i) This is not consistent with either logic or sensory evidence, primarily, because one principle, such as the ability to transform from one Element into others, should apply to all the entities involved (Arg. 1).
- (ii) According to the theory, Earth would be the only incorruptible - unchangeable - Element out of the four (Arg. 2).

Proclus, after apparently ignoring the above problem of logical consistency, draws attention, instead, to the distinct lack of sensory evidence in support of Earth's transformation. The earthy substances which appear to change to other Elements are not pure Earth but mixtures with Air or Water (gēina... aeros ē hudatos anapeplēstai). Furthermore, processes such as boiling and metal-working demonstrate that the pure Earth does remain impassive (menei apathē) in the form of ashes (tephra), whereas the admixed Water dissipates in Fire (hudōr phlogoumenon). The immobility of Earth as a cosmic body also demonstrates its unchangeable nature.²

Yet in reply to the 2nd Argument, Proclus emphasizes that although Earth is unchangeable (ou metablētē) it is nevertheless divisible (diairetē). He argues, that since the other 3 Elements are "established in Earth's bosom" (kolpois ēdrasmena), then Earth is a "patient" (paschei) of the division (diairesis) which is initiated by the other 3 Elements (which, incidentally, he names Water, Air, and sublunary fire). The choice of terms also shows that Earth was viewed as a kind of substrate-matter for the other Elements and Fire in particular. So, according to Proclus, Earth in itself does relate to the other Elements by "suffering" their dividing action, although it can not change into them.³

2. The Arguments on the formation of interstitial void between the corpuscles of the Elements centred around the geometrical theorem, that only the tetrahedra and the cubes out of all the five regular polyhedra can completely fill the space about a point. Argument 6 stated precisely this fact, whereas Argument 8 elaborated the criticism by introducing the impossibility of generating continuous bodies, such as flesh and bone, by ill-fitting polyhedra or triangles. Flesh and bone were particularly mentioned, because in Timaeus' physiological exposition they were said to be composed by all 4 Elements, not just by Earth-cubes or Fire-tetrahedra.⁴

Proclus' reply reiterates the Timaeian explanation,⁵ that the overall binding of the heavenly sphere limits the movement of the elementary particles. Thus the smaller corpuscles are able to fill in the interstices between the larger ones and so no void is left. In the case of composite bodies, he adds, the larger constituents are more inert to motion (*stasimōterōn*) and thus keep the body continuous. But his explanation could only reduce the magnitude of the inconsistency, which it sought to resolve; it could never really nullify it. This is especially poignant for Proclus, because in his Commentary on Euclid A he provides the proof of the geometrical result, which is employed in this Argument.⁶

3. Predictably, the main battleground between the Aristotelian and the Timaeian Element theories was the derivation of the many and diverse qualities from the geometry of the Platonic polyhedra. This is demonstrated by the number - seven - of the objections, whose philosophical merit or seriousness was perhaps not meant to have been equally distributed. Simplicius bluntly states that two of them especially (Arg. 11 & 12) are "mocking jests" (skōptikon, kōmōdian). The main focus of this group of objections was the explanation of the qualities hot and cold.

Proclus' main form of reply is that a quality such as heat is a function of many geometrical properties, including the sharpness of angle. With this basic argument he ripostes in a uniform manner a number of these criticisms.

Specifically, in reply to the objection (no. 10) that all Elements should burn with a degree depending on the angle of their polyhedra, he recalls that Fire alone combines not only sharpness of angle (oxutēs gōnias) but also small or thin sides (pleuras leptotēs) and rapid movement (tachos kinēseōs). The difference between burning (kaion) and purely illuminating (phōtizōn) fire depends on the size of the tetrahedron.⁷ Again in reply to Objection 15, which queried how cold can be attributed to the large size of the polyhedra of Water & Air when there can also be large corpuscles of Fire, he restates that the properties of the Elements - such as cold - are functions of many variables, including "size". Therefore a large corpuscle of Fire is not cold but still has fiery properties.⁸

A similar form of argument may also have been employed in reply to the "mocking" objection (no. 11) that even mathematical bodies should burn with their sharp angles. Although in the passage Proclus simply points out that mathematical solids cannot burn precisely because they are mathematical and not physical, Simplicius supplements that mathematical are neither enmattered nor moving nor do they have physical sides.⁹

This line of argument can also be discerned in Proclus' reply to

the criticism (Arg. 14) that if shape can account for cold then there is no such thing as an "opposite shape" to account for heat. Proclus exposes this superficial objection by observing that heat or cold are not shape but the quality, faculty of a certain shape (*oude schēma estin...alla dunamis tinos schēmatos*). Thus different shapes can yield contrary qualities.¹⁰

Another form of reply is the introduction of the distinction between "essential" and "accidental" elemental qualities. He employs this differentiation to answer: Firstly, the other "mocking" objection (no. 12), which argued that the transformation of other substances into Fire, when burned, is equivalent to saying that a knife transforms the things it cuts into more knives. Secondly, the more empirical objection (no. 13), which pointed out that Fire coagulates substances as well as divides them. Specifically, Proclus' answer is, that "cutting" (*temnomenon*) and "dividing" (*diakrinei*) are "essential" properties (*kat' ousian*) of Fire, whereas in the example of the knife, cutting is an "accidental" property (*kata sumbebēkos*) of the metal edge which does the cutting. Again, any coagulation (*sunkrisis*) which is due to Fire, as is evidenced in metal-working, is "accidental" and independent of Fire's essentially dividing nature. In this reply Proclus also introduces empirical examples from metallurgy and drug-making - the drugs for "fiery" ailments in particular.¹¹

The 9th Objection drew attention to the relation of shape with movement. If the cube is the shape of stability and of the capacity to remain in one's own proper place, then all the Elements should be cube-shaped, when they are in their own proper places, like Earth.

Proclus replies by presenting the Timaeian notion that movement is primarily due to dissimilarity (*anomoiotēta*). Earth remains stable in its own place because apart from being at the cosmic centre, its shape is "similar" in all - six - directions. The other Elements, although they do not have this stability and evenness, are able to exist in their proper places by moving around

each other (peri allēla trepomēna) in a manner which imitates the celestial circular movement (kuklikēn mimeitai phoran).¹²

4. Perhaps the most common misunderstanding of the Platonic theory was the assumption that the polyhedra are the ultimate elements. In fact the true elements in the theory are the two fundamental plane triangles. The Aristotelian arguments about the shape of the polyhedra rested on the position that the "simple bodies" of the Elements should have a definite feature remaining invariant through successive divisions. In this sense the arguments rested on the above fundamental misunderstanding.

This is demonstrated by Arg. 5 which presented as a problem the geometrical fact that the "cutting" of the polyhedra does not yield figures analogous to the original. Proclus reproaches (memphetai) this misreading of the Platonic theory and reminds that the tetrahedron is the "seed-element" of Fire and not Fire itself (puramida sperma puros...all' ouchi pur). Furthermore, inasmuch as the original theory did allow for the drifting of debris plane triangles until they are reconstituted into new polyhedra, the existence of irregular forms of the Elements, which are contrary-to-nature (para phusin), is not problematic (to the theory itself). This is because these temporary irregular forms will eventually take the shape of the appropriate regular polyhedra.¹³

Arg. 7 argued the opposite. The expected unchanging shape of the polyhedral, as assumed, atoms is not really invariant, since they ought to take the shape of their container. Proclus counter-argues in an Atomist manner, that the characteristic polyhedral shapes apply to the miniscule elemental corpuscles not to the Elements as a whole. Thus, many but small and individually invisible corpuscles can produce any kind of overall shape. In addition, since the containers themselves are also composed of elementary bodies then there is no mismatch between the substance of the contained and the walls of the container.

His solution for the problematic mismatch between the absolute spherical shape of the heavens and the ultimately rectilinear shape of the adjacent tetrahedra of the sublunary fire is that

the plane triangles of the faces of the tetrahedra become convex by the binding of the heavens (kurtoutai sphingomena). In this way they are made to fit (ina epharmosē) into the curvature of the celestial sphere. The "binding" of the heavens can be traced to Timaeus 58 AB and the explanation on the filling of interstitial void (see Arg. 6). But the "bending" of the tetrahedra has its own difficulties.

Simplicius' appendix to Proclus statement¹⁵ shows a certain apprehension, that this bending would constitute a violent or forced action even if it was supposed to be natural (hupo technēs ē phuseōs biasthenta sphairika gegonen). Proclus had earlier¹⁶ related the curving of the tetrahedral faces to the sphericity of the wholes of the Elements. He had said, that this sphericity, which is by imitation to the heavens (ta hola esphairōtai sunexomoioumena tō ouranō), is due to something "better" (ti kreisson) than the characteristic properties of the Elements in themselves. This "better" nature has been imparted by more divine causes (ek tōn theioterōn). This also explains why bodies which come closer (ta tō ouranō plēsiazonta) to the heavens move in a circular fashion (tēn kuklō kinēsēsin; also see Motion of the Elements chapter 5). This short sentence is in fact saturated with Proclus' Neoplatonism. The reference to the "wholes", in this case, seems to be part of his much wider ontological philosophy which links the scheme of participation and predication with wholes and parts.¹⁷ This is confirmed by the reference to the "better" quality due to "more divine" causes. Proclus' explanation can thus be summarized as follows: The wholes of the Elements are spherical because they are the images of and seek to imitate the "better" perfect spherical figure of the "self-subsistent" entities of the "encosmic" world, namely the celestials (see Part I, sect. B, Ch. 1.3 independent henads identified as divinities). The particles of the wholes of the Elements which are closest - literally and metaphorically - to the heavens seek to and indeed do curve in a convex manner, in order to fit into (or "unite" with) the concave curvature of the heavens. This is not a forced bending but a natural manifestation

of their own predisposition to become like their better nature.

It is interesting that Proclus did not pay attention to the more physical alternative of extending his other argument, namely that both the container and the contained are composed of the Elements. This could have applied even in the case of a celestial container, since the heavens, as he says, (see also II.B.4) are composed of Fire. Furthermore it would have had the added bonus of accounting for the Aristotelian zone of combustible material (see Ch. 4.2) by the friction between celestial and sublunary rectilinear tetrahedra. It is also interesting that he did not chose to make more of the Platonic reference in *Phaedo* 110 B6, that the spherical shape (of the earth) is like that of an inflated (and elastic) dodecahedral leather ball.

The plane triangles were both the fundamental constituents of the Platonic theory and its most problematical entities. If they were supposed to be plane, ie 2-dimensional, triangles, how could 3-dimensional solid corpuscles be generated from them (Arg. 4)? Secondly, how could they exist suspended (*paraiōrēsis*) in a free state, albeit temporarily, during the transformation of the Elements (Arg. 3)? The core of the problem was, as Simplicius noted, whether the plane surfaces (*epipeda*) of the polyhedra are mathematical (*mathēmatika*) or physical (*phusika*) and enmattered (*enula*). As mathematical the planes would only have length and breadth, but as physical they could also have depth.¹⁸

Proclus evidently chose the physical interpretation. His answer to the 4th Arg. is "that the physical planes are not without depth (*ouk estin abathē*); for if body extends (*diistēsi*) the whiteness¹⁹ which falls upon it, it will all the more separate the planes which encompass it (*ta periechonta auto epipeda*)" (2). Physical planes - and the fundamental "physical" triangles - could thus be said to produce 3-dimensional physical bodies: their assigned depth attributed to them a kind of corporeality. As mathematical entities they could not do so, because mathematical were conceived

as incorporeals. "... (from previous passage) but if the plane has depth (bathos), then the generation of body will no longer be from an incorporeal (ex' asōmatou), but it will be the generation of a more composite (sunthetōteron) from a more simple body" (3). Furthermore the physical planes provided the basis for accepting the existence of free triangles in a physical world. The plane triangles would be capable of free existence, since by being physical and by virtue of their depth they would be appropriate entities for the physical and corporeal world. This physical interpretation of the plane triangles is behind Proclus' candid admission, in answer to Arg. 3, that there can exist half-formed particles (amorphōta, merē emigenē) during the transformations of the Elements.²⁰

NOTES ON II.A.2

- 1 Proclus' work was called "Inquiry into the Objections of Aristotle to Plato's Timaeus" and was intended as a supplement to his Comm. on the Timaeus, see In Tim.II 279,3; the frg. relevant to this chapter is Simplicius In de Caelo p.640-671; the other refer to the nature of place, of light, the fiery material of the heavenly bodies, the doctrine of Ideas, and the non-temporal meaning of "generation".
In addition to the modern works on Plato's physics mentioned in the previous chapter, the following are especially useful for this chapter: G.S.Claghorn "Aristotle's criticism of Plato's Timaeus" (1954); F.Solmsen "Aristotle's system of the physical world" (1960); S.Sambursky "The physical world of Late Antiquity" (1962), particularly II 2.- 4. on Plato's theory of matter and the treatment by Proclus. Proclus' fifteen Args. can also be found mentioned in Taylor p.403-9.
- 2 Reply to Obj.1, Simplicius In de Caelo p.643,13-27. Simplicius comments on p.644, that the dissolution of triangles may be continued to the level of formless matter (*amorphōtou hulēs*) thus allowing the mutual transformation of Earth as well; however, it is not certain whether this is supposed to be Proclus' opinion (cf. Sambursky, op.cit. p.52), also cf. Part I.B.8.5.
- 3 Reply to Obj.2, Simplicius p.645,15-28. Earth "suffering the dividing action"; cf. Plato Tim.56D,1-6. Simplicius comments, again, that the Earth is transformable indirectly, via the "common matter" (*koinēn hulēn*). The further argument by Alexander of Aphrodisias, that Earth's dissolution would result in void - because Earth cannot be transformed directly into other Elements - is not valid, for, as Simplicius observes, it is linked to the fourth obj. and the physical interpr. of the triangles.
- 4 Tim.73B.
- 5 Reply to Obj.6, Simplicius p.656,6-14. The Tim. passage, 58AB. Firstly, there is the problem of how the term "sphingei" can be translated with ref. to the circular motion of the heavens. As Taylor, p.396-8, and Cornford, p.243-5, concur, it cannot possibly mean that the heavens "compress" (see Bury's trans., Loeb ed.), for a circular motion can hardly be conceived as producing a centripetal 'squeezing' action. The better expl. is, that the heavens "bind" by providing a "bound", a limit, to the expansive motions of the Elements of the world. Secondly, there is the question of interstitial voids, "diakena". As Taylor rightly observes, p.384-8, 399, Plato does not deny the existence of transient interstitial "gaps" between the solids, also see Tim.60E, whose size is minute, see Taylor p.427. After all, they seem to have a physical role in allowing the interstitial motion of the particles, and perhaps in
(note 5 contin.)

(note 5 cont.) in facilitating changes in volume, see Cornford p.245-6, also cf. E.Grant, "Much Ado about nothing" (1981), p.69-76 on "vacuum imbibitum". This view of transient micro-voids was not uncommon and their existence was allowed as long steps were taken to rectify them, cf. D.Sedley, "Two conceptions of vacuum", *Phronesis* 27 (1982) p.175-193. However, the full answer to the Platonic "diakena" lies in the concept of the Receptacle, the "room" which has continuous existence through all change; in that sense, there is no "void" anyway, see Taylor p.405, Claghorn p.15; also see Proclus' conception of Space, filled with light.

- 6 Proof regarding the type of polyhedra capable of filling all space about a point, Proclus In Euclid A ch.15, p.305 (Friedlein); also Simplicius In de Caelo p.651-55. That the validity of the arg. regarding ill-fitting polyhedra appears to have been accepted, is betrayed by Simplicius' conclusion to Arg.6, p.657.
- 7 Proclus' reply to Obj.10, Simplicius p.664,1-13. The point is not that Proclus' line of argument is just too flexible and accommodating, but that it is systematic; nor that Plato's theory is, again, too flexible, but that Aristotle does not take into consideration Plato's theory in full, and so his presentation of Plato is unfair and this family of arguments shallow; also see note 9.
- 8 Reply to Obj.15, Simplicius p.670-71. Aristotle ignores the angle-factor and the mobility of Fire. As Proclus says, big tetrahedra only means big particles of Fire, not cold.
- 9 Reply to Obj.11, Simplicius p.665,10-24. Here the point is made specifically, viz. that Aristotle sets about to construct his objections by subtracting the appropriate factor from the shape-properties of the four Elements.
- 10 Reply to Obj.14, Simpl. p.668,20-669,3.
- 11 ditto Obj.12 & 13, Simpl. p.666,9-30 and 667,22-668,5.
- 12 ditto Obj.9, Simpl. p.663,3-15. The objection rests entirely, as Taylor p.406, observes, on Aristotle's own notion of an absolute "up" and "down". Plato's motion of the Elements depends on the idea that they strive for their proper place in relation to each other, as motion in a vortex; Fire drifts upwards by contact action from the others, etc., Tim.57D-58C. So, F, A, W, tumble, as it were, around each other.
- 13 Reply to Obj.5, Simpl. p.650,5-15. Proclus adds that such irregular states are not too foreign among the irregularities of the sublunary realm. They are eventually put into proper shape (thlibousin), p.650,10, by their surrounding polyhedra, cf. Tim.56E-57, and Arg.3; also cf. G.Vlastos art. on the irregular atomic figures, II.A.1 note 1.

- 14 Reply to Obj.7, Simplicius p.658,32-659,1. The curving of the Fire-tetrahedra is facilitated by their natural "plasticity" (euplaston), perhaps a ref. to the "moulding" by the Creator, as a "higher" cause, cf. Plato Rep.IX 588. This implies that all the Elements are liable to "curving" in the celestial mode.
- 15 Simpl. p.659,7-10; not clear whether it is part of Proclus'.
- 16 Simpl. p.658,30-32.
- 17 Wholes and parts ontology, cf. El.Th.66-74.
- 18 Mathematical vs physical triangles, Simplicius p.646,21-4 and also p.563 f. Part of a wider debate on the nature of mathematical and physical entities with ref. to incorporeal and corporeal existence, and the value of mathematics. Criticism aimed at schools of thought which centred on the geometrization of the physical world, such as the Pythagoreans (and the Platonists). The arg. was how three-dimensional solids can be said to be constructed from non-three-dimen. figures, such as planes, lines and points; see, eg. Arist. de Caelo 299a2-17, Sextus Empiricus III, Adv.Geometras, 72-82. One of Aristotle's arg. against the Platonic plane-triangles was that they need not be joined edge-to-edge to form solids, but that they can be stacked on top of each other; de Caelo 299b 23-32, and see Simplicius In de Caelo 573 ff. However, as Taylor points out, p.408-9, there existed the notion of a point as minimal volume (and planes with minimal thickness); indeed, see also Claghorn p.32-35, within the Platonic Receptacle there could exist physical triangles, although it would be wrong to think the solids as built-up by laminae of matter, rather as delimited by planes.
- 19 Distend the whiteness: similarity with Tim.67E and the theory of colour vision is not appropriate, since the dilation of the visual ray, which is said to produce "white", is not comparable to the extension of planes by body. Perhaps it relates to Rep.IV 429 where the "hupodoche"-receptacle is likened to the "basic" white background, which^{is}sought in the process of dying cloth, before the dye itself is applied; as Taylor, p.328 cf. 331, comments, the coloured patch (meaning a physical thing) = extension (hupodoche) + configuration + colour (shape and form).
- 20 Simplicius p.648,6-10; Proclus also says that in every change there is something formless (aneideon) "to a certain degree" (mechri tinos sunchōrēteon); cf. Plato Tim.56E-57 and 59A.3-4, Also the ref. to free triangles "in suspension" (paraiōrēsis) Arist. de Caelo 306a 22, and Simplicius In de C. p.647,9 ff. See Taylor, p.383, 388-9 and 415 on the disintegration into triangles as an intermediary state, and Sambursky, op.cit. p.53.

3. THE PROPERTIES OF THE PROCLAN ELEMENTS

From the fragments on the 15 Arguments the following can be surmised:

- (i) Proclus' Elements are broadly the Platonic ones, viz. they consist of the 4 regular polyhedra and their associated properties such as sharpness or bluntness of angle, moved with ease or difficulty etc.
- (ii) The plane triangles are physical and possess depth. In this he may differ from the Platonic intention, that the planes and their triangles are mathematical representations. But the physical interpretation accords with Proclus' general philosophical principle that all entities exist at every level of existence in an appropriate mode. Accordingly, the Elements may indeed exist as mathematical entities at the level of the incorporeal mathematical, but in a discussion pertaining to physical bodies (such as in the Timaeus), the Elements and the elementary triangles must be taken in their physical mode. Such a "physical" mode would have to be 3-dimensionally extended, according to the Pythagorean standpoint (actually it is Neo-Pythagorean) which Proclus assumes to apply throughout the Timaeus.
- (iii) He allows a certain flexibility to the shape of the polyhedra, but only due to metaphysical causes.

Another concept in Proclus' Elements theory which does not feature in the 15 Arguments, but it does in the "Commentary on the Timaeus" is that of "dunamis".¹ The word which originally denoted power and influence but also came to mean the capacity of a thing to interact with others, quality, and the Aristotelian term for potentiality.

In Plato, the sensory qualities or *dunamis* associated with Fire, Air, Water and Earth seem to have pre-existed (but not necessarily in a temporal sense) in the Receptacle until they were "put into shape by means of forms and numbers (*eidesi arithmois*). And God (viz. the Demiurge) constructed them to be as fair and good as possible (*ἢ δυνάτον*) " (4). In other words, the qualities

(poiōtētes) such as hot, cold etc, the means by which things "affect" (pathos) each other in an interaction, namely an event, happening or phenomenon, became subject to and were delineated by the geometry of the polyhedra.

During the intervening eight centuries between Plato's *Timaeus* and Proclus' Commentary, and his own re-interpretation, many philosophical developments took place which on the whole increased the role of "dunamis" and of qualities.

The one major development directly relevant to the *Elements* was of course Aristotle's qualitative theory. This also influenced the systematization of the four Hippocratic humours largely because the concept of powers (dunamis) or qualities was already important in ancient medicine. Medical preoccupation with the transmission of affliction reinforced the concept of "sympathy", which together with the Stoic "connective power" (sunēktikē dunamis) of the all-pervading pneuma, and the original Platonic view of the World as living body animated by a World-Soul, led to Poseidonius' world-sympathy, i.e. world-affection, which is transmitted by the "vital power" (vis vitalis, zōtikē dunamis) of the world. Other relevant philosophical developments of dunamis include, the Aristotelian identification of dunamis with potentiality and capacity to act or pass into actuality (energeia), Philo's identification of "powers" with the Platonic ideas, and Plotinus' conception of one dunamis per form (eidos) per intelligible (noēton).²

These strands were synthesized by Neoplatonists, like Iamblichus, so by Proclus' time "dunamis" was conceived both as something peculiarly individual to an entity and as its means for sympathetic interaction with the rest of the Universe, in a manner not unlike the modern conception of a field around a body.³

Against such a strong background in favour of dunamis, which in Proclus' own system, especially, is part of the triad, essence (ousia) - power (dunamis) - activity (energeia) (and which is

further associated with the triad real-existence - life - intellect), it is hardly surprising to see him giving it a distinct identity, in his Element theory: "for every physical body needs to have (dei echein) a physical power with which it is able to act (dunēsetai poiein) according to its nature (kata phusin)".(5). This also accords with a statement made by Syrianus - Proclus' teacher and predecessor, whom he acknowledged as his spiritual father - in his Commentary on Aristotle's Metaphysics: "The five figures which are discussed in the Timaeus and which are employed in the formation of the cosmic Elements, on the one hand, they are interpreted in mathematical terms (mathematikois onomasin), but, on the other, they hint (ainittetai) at active and creative powers of Nature (drastikas kai dēmiourgikas dunameis tēs phuseōs)" (6).

This feature, that certain characteristics or concepts can have both a mathematical, "ideal", interpretation and a physical, "enmattered" (enulon) one, seems to have been one of the notions which Neoplatonism inherited from Neopythagoreanism, in much the same way Pythagorean number-symbolism had found its way in Plato's mathematics. As Proclus maintains, "the physical entities are images of the mathematical" (7), for although "the Elements are everywhere bound by proportion...in the mathematical the proportion possesses the exact and scientific quality (to akribes echei kai to epistēmōnikon); for the proportions are immaterial. Whereas in the physical entities it is no longer the same case" (8). Nevertheless, he is quite definite that when the discussion calls for physical entities then the physical explanation should predominate over the mathematical. For example, in commenting on the Timaeus 31 C5 - 32 A "the means of any 3 'arithmōn' or 'onkōn' or 'dunameōn' ", which refers to the binding of the two extremes Fire and Earth via two intermediaries viz. Air & Water, he gives two different interpretations for the triad, number - "onkos" (volume) - "dunamis" : (i) The mathematical interpretation, where the triad, number-volume-power is said to refer to Arithmetic-Geometry-Music (dunamis also the term for musical pitch): hence the Timaeus phrase is interpreted as arithmetical mean, geometrical mean and harmonic mean.⁴

(ii) The physical interpretation, where the above triad is said to refer to the three constituents of a physical body: the enmattered form; the corporeal bulk-volume, extension (ektaseis, diastaseis); the enmattered powers or qualities (poiotētes).⁵

These enmattered and physical powers, the manifested qualities of a body, are said to have been "emitted" (proiētai) from the "essential" form (ousiōdes eidos) of the body like a breath (hoion pnoēn) when the body acquired its bulk-volume (onkōthen).⁶ This phraseology is pregnant with Proclus' Neoplatonic philosophy according to which entities that exist in a "causal" or "formal" mode in higher hypostases "expand" and acquire physical spatiality or 3-dimensional solid figure in their corporeal and material mode of existence.

By analogy to the 3 dimensions of a solid figure, Proclus suggests that the 4 perfect solids of the Elements should also have 3 powers or primary qualities each. He had a dual "raison d'être" for this, quite appropriately, one mathematical and one physical.⁷

The mathematical⁸ originated in the Timaeus itself where thanks to the Pythagorean influence the 3 sides of a solid were associated with the 3 factors of a cubic number. Thus, it was said, between two cubic numbers, a^3 and b^3 , there should always be two intermediary cubic numbers which include factors from the two previous, viz. the intermediaries a^2b and ab^2 . This results in a continuous chain of proportion: a^3 to a^2b , as a^2b to ab^2 , as ab^2 to b^3 .

This chain of proportion between 2 cubic numbers via another 2 intermediary cubic numbers, corroborated mathematically the existence of 4 Elements in the 3-dimensional corpus of the universe. So, if Fire and Earth were to be the two extremes of the universe, as in the Timaeus, the one imparting visibility to the World-Body and the other tangibility, like a^3 and b^3 , then there will only be two intermediaries which can harmoniously bind them together, viz. the intermediaries Air and Water, like a^2b & ab^2 .

The physical⁹ *raison d'être* was based on the principle of similarity between adjoining entities. This (see Part I.A.3) governs his whole hierarchy and is responsible for continuity and sympathy in the universe. On this basis Proclus rejects those who assigned 1 power per Element, such as heat to Fire, cold to Air, moisture to Water and dryness to Earth. Firstly, because each of the pairs Fire-Air and Water-Earth, is composed of contraries which are next to each other (eg hot-cold). Secondly, and perhaps even worse, the qualities of the two pairs (ie hot or cold vs moist or dry) are orthogonal to each other. In other words, there is no relation at all between the two pairs, not even in terms of contrariety.

He also rejects those - mentioning in the passage "Ocellus" the 2nd c. BC "Pythagorean", although he would have known that this was also Aristotle's theory¹⁰, who assigned two powers or qualities per Element, viz hot & dry to Fire, hot & moist to Air, moist & cold to Water and cold & dry to Earth. Firstly, adjacent Elements which have only two qualities "are both hostile and harmonious in equal measure (*isō metrō*) and will in equal manner (*ison tropon*) both dissolve and reconstitute the universal communion... will no more 'be' than 'not be' (*ouden mallon estai ē ouk estai*)" (9). So, for example, Fire and Air have one quality in common (hot), but they also differ by one quality (dry vs moist). Secondly, in such a scheme the cosmological extremities of Fire and Earth are made adjacent - sharing the dry quality - instead of opposite.

Proclus' theory of 3 powers per Element accommodated the physical and cosmological requirements. Firstly, in his scheme Fire and Earth differ in all their three qualities and are therefore opposite. Secondly, as each Element has 3 qualities, adjacent Elements are made to differ by 1 quality at a time. Thus adjacent Elements have 2 qualities in common but only 1 different and contrary. So, paraphrasing the above sentence on "to be" or "not to be", thanks to the Proclan Elements the "existence" of the Universe predominates

over its "non-existence" by 2:1.¹¹

The specific qualities or powers which Proclus chose to assign to the 4 Elements are as follows:

"to Fire, tenuity or smallness of the particles (leptomereian), sharpness or acuteness (ref. to the angle. oxutēta), ease of motion or mobility (eukinēsian),
to Air, tenuity or smallness of the particles, bluntness or obtuseness (amblutēta), ease of motion or mobility,
to Water, grossness or bigness of the particles (pachumereian), bluntness or obtuseness, ease of motion or mobility,
to Earth, grossness or bigness of the particles, bluntness or obtuseness, difficulty of motion (duskinēsian), or immobility (akinēsian)" (10).

These elementary properties represent a formalization of the geometrically determined qualities of the Platonic polyhedra,¹² whose combinations explained the more empirically derived qualities such as hot, cold etc. They also represent the result of a rather careful selection between alternative versions; I am referring in particular to the powers of the intermediaries, Air and Water.

In the following passage, Proclus shows how Air's powers can be constructed from Fire's, and how Water's from Earth's, using the illustration of a solid whose 3 dimensions or "sides" can be likened to the 3 powers:¹³

"Therefore, because Fire has 3 physical sides (pleuras phusikas), viz. the 3-ple powers tenuity, sharpness and mobility, we can make (poiēsomen) Air, which has 2 sides of Fire and 1 of Earth, or rather 2 powers (dunameis) of Fire and 1 of Earth, by subtracting (aphelontes) the power in the middle viz. sharpness, and by inserting in its place (anteisagagontes) bluntness. So, it is exactly appropriate, that the Element which is proximate to Fire

should have more in common (koinōnein) with it, rather than with the Element (ie Earth) which is third distant (apostasin) from it. Again, because Earth has 3 physical sides which are contrary (enantias) to the powers of Fire, viz grossness, bluntness and difficulty of motion, we can make Water, which has 2 sides or powers (duo pleuras ē dunameis) in common with Earth but receives (labon) 1 from Fire, by subtracting the difficulty-of-motion and by inserting (eisagagontes) the ease-of-motion" (11).

But observe how particular he is in choosing one specific power out of the possible three for the replacement. This is because according to the principle of similarity alone it would be quite sufficient to have Air= $\frac{2}{3}$ Fire + $\frac{1}{3}$ Earth, and Water= $\frac{1}{3}$ Fire + $\frac{2}{3}$ Earth, indiscriminately of the character of the power. By choosing, for example, to replace Fire's sharpness-of-angle with bluntness in making Air, he imposes a "physical" constraint governed by the geometry of the Fire & Air polyhedra. This excludes the other possible Airs, viz the one with tenuity, sharpness and difficulty-of-motion, or the one with grossness, sharpness and ease-of-motion, both of which would still be $\frac{2}{3}$ Fire + $\frac{1}{3}$ Earth.¹⁴ And similarly for Water.

Such a problem could not have arisen in the Aristotelian scheme because there each Element has one and only one pair of qualities available. So, if we compare the number of all possible combinations of the elementary qualities in the two schemes we will find that: (i) In the Aristotelian the total number is 4 pairs, the same number as the corners of a square. This result is of course most convenient for a 4 Element theory. (ii) In the Proclan the total number is 8 triads, one for Fire, one for Earth, but three for Air and three for Water, the same number as the corners of a cube. Such is the cost for rising to the third dimension.

The possibility of pseudo-Airs and pseudo-Waters, whose existence is allowed to slip into silence, in effect shows that Proclus' elementary qualities are subordinate to the geometrical properties of the elementary polyhedra;¹⁵ something he would not have seen as

unwelcome, anyway.

But how well do other more "sensible" or more qualitative properties tally with these geometrical ones? There are numerous citations of such qualities ascribed to the 4 Elements. Here is a selected list.

Fire	Air	Water	Earth
cutting, impulsive, penetrating	tenuity & transparency	glutinous (kollētikon) unifying	solidity & stability, solid & steadfast,
differentiating /distinguishing (diakritikon)	connective & transparent	even & smooth	solid & tangible
	scatters,	glutinous & connecting	
active (drastērion), able to divide	weakens	less easy to be affected than Air (duspathesteron)	
light, visibility, illuminating			
self-moving power	connecting & unifying, transparent intermediaries		

The list does not include the qualities which are said to depend on the cosmological mode of the Elements, eg. heat.

cf	cf	cf	cf
sharp, tenuous/small, easily moved	blunt, tenuous/small, easily moved or displaced	blunt, gross/big, easily moved or displaced	blunt, gross/big, difficult to move or displace

Some of them exhibit a more obvious dependence on the Proclan triple powers. For example, Fire's cutting (tmētikon), penetrating (diadunon) qualities are directly attributable to the shape of its tetrahedron, and impulsive (itētikon) may be referred to the mobility (eukinēsian). The separating (diakritikon) property — which also carries the metaphysical interpretation of

"differentiation" - is sometimes found together with references to the dividing (diairein) ability of Fire and are therefore also variations of the cutting and penetrating qualities. Similarly, Air's tenuity (leptotēta) is a direct reference to Air's smallness-of-parts (leptomereia). Again, Earth's stability (edraiotēta), steadfastness (to monimon) and solidity or firmness (stereotēs) are among the family of qualities that are derived from Earth's immobility or difficulty of motion (a/dus-kinēsia) in combination with the other two powers, viz bigness of the particles and bluntness of the polyhedral angles.¹⁶

But other qualities such as efficacious or active (drastērion) and illuminating (phōtizontos) for Fire, connective (sunektikon) and transparent (diaphanes) for Air and Water, and tangible (hapton) for Earth, do not show immediately a direct dependence on the triadic powers.¹⁷ Either the conceptual connection is more indirect or they seem to include properties external to the triadic qualities.

The attributes such as efficacious for Fire, scattered and weakening (diaskorpizomenon asthenein) for Air, and impassive or affected with difficulty (duspathesteron) for Water,¹⁸ may be referred to the relative state of mobility in conjunction with the difference between sharpness (for Fire alone) and bluntness (for all the other Elements). In that case "efficacious", which means activity, may be derived from Fire's sharpness and mobility, whereas "scattering" or impassivity, which seem to be different degrees of resistance to an action, may be based on the differences in corpuscular size: Air, small and more scatterable; Water, large and less affected. The same line of argument can also be extended to include Earth's tangibility, which Proclus defines as a form of resistance. "For that which is solid is tangible (hapton garesti to stereon) and able to offer resistance to the touch (antereidēn...pros tēn haphēn); for that which is easily dispersed (euthrupton) and cannot endure under the touch is in no way tangible. On this account Pythagoras calls the Earth 'enduring' (tlēmōna), since it is solid and resisting (antibainousan)

to the touch and since it is moved-with-difficulty and is participating in the staying power (monimou dunameōs)" (12).

Yet there still is an internal imbalance between having Fire as a kind of "agent" but all the rest as "patients", with Earth offering the greatest degree of resistance. For example, whereas the "eukinēsia" of Fire endeavours to convey the notion of active mobility — indeed Proclus does say that the fiery element is full of life and self-moving power (autokinētou dunameōs)¹⁹, the "eukinēsia" of Air and Water seems to convey the more passive notion of readiness to be displaced. As mentioned earlier, this is probably accountable by Fire's sharpness-of-angle (oxutēta). But a better candidate is perhaps Fire's illuminating power, since in Neoplatonic systems light exemplifies above all the dynamics of the universe and is almost synonymous with inherent capacity for activity. "...among the Elements in the domain of generation, Fire has the relation of 'form' to the other Elements (eidous epechei logon to pur)" (13); "but the fiery element predominates (epikratei) over all in order that the form which is there controls the substratum and maintains and preserves it from every side, and is itself full of life (plēres zoēs) and self-moving power; hence it is also full of divine and creative principles (logoi) and emanates (proelēlute) into multiplicity and spatial extension (eis plēthos kai diastasin) delimiting (horizon) the spatially extended and encompassing the bulk-volume (onkon) of the body in every way" (14).

This is Fire as one of the terms of the contrariety Fire vs Earth,²⁰ visibility vs tangibility, or action vs resistance. "For to what else can he attribute visibility except to that which is generative of light? And what else can this be, except Fire? For Earth is the efficient cause (poiētikē) of everything contrary (enantiou) to light; for Earth is the cause of darkness (skotous aitia)...; whereas Air and Water are transparent (diaphanē) and are not visible by themselves; hence each of these is an intermediary between Fire and Earth, viz. the one which is primarily visible and the one which intercepts visibility

(epiprosthountos tois horatois), ...It remains therefore that Fire alone, when it is present (parē) in the other Elements, illuminates and makes them visible" (15). "Therefore the earthy element is also there as a certain solid substance and tangible bulk (sterea tis ousia kai haptos onkos) on account of which it resists our sight, whereas the fiery element is that which illuminates and creates the form of the bulk and spatial extension (hōs phōtistikon kai eidopoion tou onkou kai tēs distaseōs). And their intermediaries - viz Air & Water - are there as the connecting and unifying (sunektika, henopoia) elements of the extremes" (16). To illustrate it more clearly: Fire is like a torch sending its beam of light through transparent but increasingly thicker media (Air & Water) until the beam hits, say, the bottom of a pond (Earth), which is thus fully illuminated.

The problem with illumination and visibility is that they do not truly depend on the three powers of Fire; the elementary powers are the ones which are intended to explain and express the essential nature of light. It would seem therefore, that the whole class of properties which rely on light being a species of Fire relates to the "substance" (ousia) itself rather than to the "power" of Fire. Perhaps this is an example of substantial power.²¹

The duality of Fire-Earth also explains the properties "connecting", "unifying" and "transparent" for the two intermediaries Air and Water, which "bind" the two extremes together. Nevertheless, Proclus also recognizes the contrariety Fire vs Water, which is usually found in schemes with two powers per Element. He observes that this contrariety applies to the Elements which are subject-to-change (metablētois, viz Fire, Air & Water), "we should no longer say that they are Fire and Earth, but, instead, Fire and Water. For Water can above all extinguish Fire" (17). The opposites Fire and Water also appear as the two complementary elements in metallurgy. "For melting (tēxeōs) and welding (kollēseōs) are necessary for the production of things whose parts are like each other (homoimerōn), the latter being provided by moisture (hugrotēs) and the former by heat (thermotēs); for everything (to pan) is

melted down (tēketai) by Fire and is glued together (kollatai) by Water" (18). The last sentence of the quotation has been recognized as an alchemical expression. The "melting" of Fire and the "gluing" of Water would correspond, then, to the famous "solve et coagula".

The "gluing" attribute also explains Water's glutinous (kollētikon) property, which for Proclus would carry the added, more cosmological, bonus of helping to bind Fire and Earth together. The power which almost certainly can account for the glutinous as well as the even (homales) and the smooth (leion) qualities of Water, is the largeness of its particles (pachumereia). The rationale appears in the Timaeus itself, where the fusible (chuton) kind of Water, to which the metals are classed, is said to be composed of large (megalōn) and even (homalōn) particles, and is, as a consequence, more stable.²²

NOTES ON II.A.3

- 1 The chief specialist study is, J.Souilhé "Étude sur le terme dunamis dans le dialogues de Platon" (1919), which covers all the earlier Greek ideas on the subject. Also see, G.E.R.Lloyd "Polarity and Analogy" (1966) on the socio-political imagery behind the term, p.210-30. For the Platonic dunamis, conceived both as something active and passive, but characteristic to an entity, also see F.M.Cornford "Plato's theory of Knowledge" (1935) p.234-247, 49; and "Plato's Cosmology" op.cit. p.53, 197-205, on the "powers" of the Elements; cf. H.L.Burstyn "The empirical basis of the Four Elements" Acts XII International Congress of the History of Science vol.3A (1971) p.19-24.
- 2 Besides Souilhé, on the medical usage of dunamis see, W.H.S.Jones "Philosophy and Medicine in Ancient Greece" (1946) and T.J.Tracy "Physiological theory and the doctrine of the 'mean' in Plato and Aristotle" (1969) esp. part II and III, where Proclus is mentioned with ref. to the physiological content in Plato's theory of the World Body and its Elements. Plato was well aware of the medical term "dunamis" see Phaedrus 270. On the Stoic "connective" cause or power, see R.B.Todd "Monism and Immanence: the foundations of Stoic physics" in "The Stoics" ed. J.M.Rist (1978) esp. p.148-160; M.Lapidge "Stoic Cosmology" in same, p.161-185. On Poseidonius, and "vis vitalis", M.Pohlenz "Die Stoa" (1959) I p.214-8, II 58, 107; F.Solmsen "Cleanthes or Posidonius? The basis of Stoic physics" Kleine Schriften (1968) p.436-460; and cf. J.M.Rist "Stoic Philosophy" (1969) esp. p.201-18. On Philo, J.Dillon "The Middle Platonists" p.155-166; there are similarities with the Chaldean "powers" (see H.Lewy, op.cit.). On Plotinus, cf. R.T.Wallis "Neoplatonism" p.49-51, 61-62. Also see I.A.1.
- 3 Cf. S.Sambursky "Physics of the Stoics" (1959) p.33-40; M.Jammer "Concepts of Force" (1957) p.26-46, p.148 f. M.Hesse "Forces and Fields" (1961) p.39-44, 67-73, 74-79, 91-97, and 195; W.Berkson "Fields of Force" (1974) p.1-4, 252-4 with a very useful table, and the refs. on field theory and contiguous action. Also, R.Harré "Powers", Brit.Journal for the History and Philosophy of Science 21 (1970) p.81-101; and E.H.Madden, M.Sachs "Parmenidean particulars and vanishing elements", Studies in the History and Philosophy of Science 3 (1972) p.151-166. My contention is that in late Neoplatonism, "power" is both an individualised as well as a general, universally diffused "field" of action and interaction.
- 4 In Tim.II 20,19-23,8 ff. Also see, A.Franzoi "Analogia, onkos, dunamis in Plato's Tim.31C4-32A1", Aion I (1974) p.51-63.

- 5 In Tim.II 25,1-8; in general, II 23,9-27,3.
Also see Cornford "Plato's Cosmology" op.cit. p.183-4, remarking that Proclus distinguishes "enmattered form" and "qualities" (poiotētes).
- 6 In Tim.II 25,1-8.
- 7 In Tim.II 39,16 ff.
- 8 The Timaeus ref. is 31C on the "bond" of the cosmos - cf. R.J. Mortley "The bond of cosmos: a significant metaphor" Hermes 97 (1969) p.372-3, and see I.A.1.
The mathematical chain of arithmetical "powers", as a math. justification to the series Fire-Air-Water-Earth, occupies a considerable space in In.Tim. (vol.II Diehl).
However, the mathematics of the scheme is not quite so simple, see A.E.Taylor op.cit. p.94-99 for a full discussion.
- 9 In Tim.II 37,17-40 and ff.
- 10 On Ocellus Lucanus the Pythagorean, see the "De Universi natura" ed. R.Harder (1926), who on p.37-8 comm. on Proclus' citation. Furthermore, J.Dillon "The Middle Platonists" p.156 footnote 1, notes that according to Philo's evidence, some thought the De Universi natura to be the source for Aristotle's theory.
- 11 Also cf. In Tim.II 39,26-7; II 41,3-9.
- 12 Tenuity - grossness corresponds to the size-factor, sharp - blunt to the angle-factor, and facility for motion is dependent on the type of face/ triangle.
- 13 Ie., since the polyhedra are three-dimensional bodies, appropriately with three primary "powers", then, a "side" dimension or factor can be likened to a "power"; in effect, Proclus carries the mathematization of qualities and elementary properties to the limit by linking them directly to the concept of space.
- 14 Constraint governed by the geometry of the Fire and Earth polyhedra: the Air polyhedron, for example, cannot have acute angles, because only the tetrahedron (Fire) has them; again, it cannot be difficult to move, because according to the Platonic definition, only the cube (Earth) has the kind of faces and constituent triangles which produce great inertia against movement. In other words, the Proclan "powers" cannot be combined indiscriminately (as in Aristotle's pure qualities) to form the four Elements, for they are essentially geometrical.

- 15 Here, I am being, of course, rather unfair to Proclus, since with the definition of the Platonic solids, such pseudo-Airs and Waters are impossible, in any case; the point is, in effect, that Proclus' "powers" are not directly comparable with "hot", "cold" etc., as he tries to make them out to be.
- 16 Qualities of Fire, refs. In Tim.II 40,4 , In Rep.II 4,9; of Air, In Tim.II 43,25; of Earth, In Tim.II 43,23, 50,7.
- 17 Next group of qualities: of Fire, In Tim.I 106,33 , II 50,10 , II 44,21; of Air and Water, In Tim.II 44,14, II 9,12, III 113,32; of Earth, In Tim.II 44,19, II 47,18.
- 18 Q. of Air, In Tim.I 107,1; of Water, I 107,4.
- 19 Fire's "self-moving power", In Tim.III 114,4; another term is "oxukinēsia", lit. moving sharpish - rapidly, was used to describe the motion of active entities incl. that of the celestial bodies, but also the psychological, of the human soul, for example.
- 20 Comparisons and parallels with the Stoic notions of active and passive principles are indeed many. See refs. in note 2 above and also, M.Lapidge "Archai and Stoicheia: a problem of Stoic cosmology", Phronesis 18 (1973) p.240-278; R.W.Sharpley "On Fire in Heraclitus and in Zeno of Citium", Classical Quarterly 34i (1984) p.231-33.
- 21 In Proclus' terminology would be "internal power" (endos dunamis); also see II.A.4.3.
- 22 Eg. In Tim.II 43,24, 50,11, 18,11-12; and see Plato Tim.58E. "Smoothness" of water, also as the description of the Aegean Sea, Herodotus Hist.III 117.

4. THE COSMOLOGICAL MODES

4.1 GENERAL

The cosmological modes of the Elements are an example of the general Proclan principle, that everything is in everything, but appropriately in each.

The 4 Elements seem to make their first appearance at the level of the intelligibles, which in Proclus' system refers to the predicate of being, real-existence, or substance (see Part I.R2). More specifically, they appear in the third intelligible triad which represents the intellect or activity of Being. Proclus places here the Model-Paradigm of the universe by which the Demiurge (the activity of the Intellect) created the world. Other cosmological appellations, which according to Proclus also refer to the Paradigm, are: the Living-Being itself (autozōon) or the intelligible Living-Being or Animal (noēton zōon), the total universe (to pan), Plurality itself (autoplēthos), and Form-of-forms (eidos eidōn).

This intelligible "all-perfect tetras" constitutes the quaternity of the 4 classes of beings (genē tōn ontōn)¹ which "pre-exist" there (prohuparchein) in a "causal" mode before (but not in a temporal sense) they "proceed" towards their physical mode of existence. The tetras is said to be further subdivided into a monad and a triad. The monad corresponds to the "idea" of the celestial beings, which is fiery. The triad corresponds to the "ideas" of the beings with airy, watery and earthy characteristics. This subdivision (which is taken from Timaeus 39E - 40A) seems to have at least two added virtues for Proclus' system.

(i) It places the seeds of the differentiation between celestial and sublunary entities as "high" or as essentially as the intelligibles. (ii) It confirms Fire's unique status among the Elements. This perhaps also explains the statement made elsewhere, that the relation of Fire to the other Elements is as the relation of form to substrate.²

Yet inasmuch as the intelligibles are the first members of the universe which participate directly in the unified nature of the One, the emphasis is not on the differentiation into four distinct Elements but on their unity in the form of a quaternity. Even this quaternity is said to exist in a hidden mode (*kruphiōs*).³

The next level after the intelligibles, where the 4 Elements are to be found still existing in a causal mode, is of the intelligibles and intellectuals (see I.B.3). This level is associated with the predicate of life.⁴ According to Proclus, here is Number (*arithmos*) as a principle. Consequently here should be the quaternity per se but presumably no longer hidden.

The Demiurge, the creative cause of the world, is at the level of the intellectuals, in Proclus' hierarchy (see I.B.4). Specifically, the Demiurge is the third member of the so-called Father divinities and is the intellect or activity of the Intellect. He is therefore most appropriately linked with the Paradigm, since they both are the activities of their respective predicate. At the level of the intellectuals is also the principle of differentiation (*diakriseōs pēgē*; *diaretikē monas*).

The 4 Elements are said to exist here as "distinct ideas" (*diōrismenas ideas*) but still in the mode of "formal aggregates" (*eidētikai periochai*), i.e. not completely separated out.⁵ They are also called, appropriately, intellectual (*noera*) and creative or demiurgic, after their present mode of existence.⁶ More precisely, they are intellectual and unparticipated (*amethekta*) in the Demiurge himself, but intellectual and participated (*methekta*) by the encosmic entities, in the intellectual series which "process" from the Demiurge. This is because, in Proclus' Neoplatonic jargon, the Demiurge belongs to the "unparticipated" cause of intellect and is the monad of the multitude of the "participated" intellects or "ideas" which proceed from it.

The next state in the procession is Soul (see I.B.5). The Elements exist here appropriately in a psychical mode (*psuchikōs*).

They are also said to become self-moved (autokinēta). Whereas the Elements in their intellectual mode are entirely unchanging, ie. unmoving, in their psychical mode they acquire the principle of motion, which in Platonism is soul. This is the aspect of animation by ensoulment (empsuchōsis) (in Proclus' thought life or vital force per se would be the more "ancient and universal cause", since it resides properly in the intelligibles and intellectuals, "above" the creative cause of the world).⁷

The encosmic and corporeal state of existence of the 4 Elements is subdivided into three:

The celestial, where the Elements exist in a celestial mode (ouraniōs).

The sublunary, viz the traditional four spheres of the Elements, where they are said to be subject-to-change (metablēta) but are moving or changing in a relatively orderly fashion (tetagmenōs).

The subterranean (hupogēn), which constitutes their "very last" (eschata) mode and where are the "sediments" (hupostathmai) of the Elements.

As Proclus remarks: "their first mixing or combination (mixeōs) makes the heaven which has everything in a fiery mode (puriōs) and where are the summits of all the Elements. From their second mixing the sublunary realm is made, where everything exists in an intermediary mode (mesōs). From their last-ultimate (eschatēs) combination the subterranean entities are made, where are the sediments of all (hupostathmai pantōn); (as the Orphic tradition says here are the four subterranean rivers) Pyriphlegethon (ie Fire), Acheron (Air), Ocean (Water) and Cocytus (Earth)" (19). "By descending (aphelōn) from that which is immaterial and unchangeable (aulon ekeino k ametablēton; viz, the celestial mode) you will produce (poiēseis) the Elements which are subject-to-change (metablēta) and enmattered (enula); and this mode in itself will be inferior (ēlattōtai) to the previous, but it will be similar (hōmoiōtai) to them through the order and symmetry (taxin kai tēn summetrian) of the movements and the unchangeability of the changes

(tais metabolais ametablēsian). But if you descend even from this order and survey (idēs) the much discordant (plēmmeles) and unstable (astaton) mode of the Elements, you will see the Elements which have become the last-ultimate (eschata) of all and are allotted the final differentiation or separation (teleutanian lachonta diakrisin), ...being the sediments (hupostathmai) of all of the ones prior to them" (20).

Three factors seem to determine the character of each of the encosmic modes: 1. the degree of materiality; 2. the mode of combination; 3. the degree of orderly movement.

1. Materiality or immateriality in the context of the encosmic entities appears to be relative. For example, the celestial bodies are called "immaterial by comparison to the changeable matter (hōs prostēn metablētēn hulēn)"⁸, whereas the sublunary are truly "enmattered (enula)"⁹. The hypercosmic entities, viz. the ones above-the-world such as the soul in itself, are considered immaterial in an absolute sense. But even this is by reference to the physical mass-matter rather than to Matter as the universal receptacle or substrate.

"For we would place (thēsomen) in heaven all the Elements but in an immaterial mode as much is possible in the material entities (all' aulōs hōs en hulaiois), and then only according to their "summits" (akrotētas autōn); for if the form (eidos) of Fire, Air, Water and Earth exists even in the intelligibles, then it is necessary that the heavens (ouranon) participate firstly (metaschein prōton) in this tetrad. But the proceeding creation gives subsistence even to the last-ultimate nature of the Elements which is indeed material (ontos hulaian)" (21). "The Fire which is enmattered is different from the Fire which is immaterial (allo pur enulon, allo...aulon), which is immaterial with regards to the matter of the sublunaries (ōs pros tēn hulēn tōn hupo selēnēn), and the corruptible is different from the incorruptible (phtharton ...allo aphtharton)" (22).

Although the main difference between the immaterial and enmattered modes of the Elements seems to rely on the size of the corpuscles,¹⁰ Proclus also adds the more Neoplatonically inspired attributes. "Pure fire (eilikrines pur) therefore is in the heavens and there is the whole fire (holon pur), but Earth is there in a causal mode (kat' aitan) and that is a different (allo eidos) form of Earth and fittingly connate with the divine fire (eikos sumphuesthai) for it only possesses the solid characteristic (stereon). As the Fire over-there is only illuminating (phōteion) and that Fire is not burning (ou kaustikon), neither the Earth over-there is gross (oude pachu)" (23).

Thus heat is only the characteristic property of the enmattered forms of Fire, not of Fire per se.¹¹ "And it must be said that Plato does not characterize Fire by heat (ou thermotēti), nor by moving upwards (oude epi tō anō kineitai) - for these are the characteristic properties (idia) of the fire down-here, which is not in its own proper place - , but by visibility; for through this it embraces all Fire (pan pur), viz the divine and the mortal (theion...thnēton), the burning and the vital (kaustikon...rhōstikon)." (24).

Similarly, weight is only the characteristic property of the enmattered mode of Earth. "The nature of Earth (gēs phusis) is not the same everywhere and in all parts of the World, but in some places (hapou) it is more pure, immaterial and without weight (katharōtera, aulotera k, abarēs) - for weight (baros) is not the characteristic property (idion) of Earth, but tangibility (to hapton) is - , and in other places it is more enmattered, heavy and moved with difficulty (enulotera, bareia duskunitos). And in some places it exhibits (epideiknumenē) only its solidity but elsewhere it receives in addition (proslambanousa) other powers which are incident-to-generation (genesiorgous) and enmattered according to the same manner as Fire " (25).

To further underline the statement that everything can participate

in the Elements, and in Earth in particular, Proclus even brings as evidence the appearance of incubi to the lustful Etruscans of Italy. He affirms, that these entities prove themselves to be earthy ($\bar{\epsilon}\lambda\epsilon\eta\theta\eta\bar{\varsigma}\alpha\bar{\nu}$ ontes) by their reported seminal deposits and ashes.¹²

This conception of materiality then seems to be identical with and reducible to terrestriality. "And as the substantially-existent ($\text{ont}\bar{\omicron}\varsigma$) pure Fire is over-there ($\epsilon\kappa\epsilon\iota$), in this way the substantially-existent Earth ($\text{h}\bar{\epsilon}$ $\text{ont}\bar{\omicron}\varsigma$ $\text{g}\bar{\epsilon}$) and the wholeness ($\text{holot}\bar{\epsilon}\varsigma$) of Earth is down-here (entautha), and the Fire down-here is according to participation (kata methexin) and in a material mode ($\text{hulik}\bar{\omicron}\varsigma$), just as Earth is over-there in a primary mode ($\text{pr}\bar{\omicron}\text{t}\bar{\omicron}\varsigma$)" (26).

Yet the main operative terms are not only grossness — one of the 3 Proclan powers for Earth — but also disorderly, confused, irregular, etc, viz. the qualities associated with the cosmological realm of genesis, the domain of generation and perishing.¹³ But inasmuch as that neither Earth's grossness nor the obtuseness of its angles nor the difficulty of motion can by themselves fully account for disorderly motion, then terrestriality in itself is not the only element of materiality. Rather, it is Earth's terrestriality as defined by the 3 Proclan powers and Earth's cosmological role as the last level of the hierarchy, which is both the "base" (hupobathra) and the sediment ($\text{hupostathm}\bar{\epsilon}$)¹⁴ of the orderly cosmos. "Fire is analogous to form ($\epsilon\iota\delta\epsilon\iota$) and the masculine quality (arreni) and things such as these, whereas Earth is co-ordinate with matter ($\text{hul}\bar{\epsilon}$ sustoichon) and the female quality ($\text{th}\bar{\epsilon}\lambda\epsilon\iota$)" (27).

2. The mode of combination is the manner with which the 4 Elements are said to mix together. Since the 4 Elements, as pure Elements, are the constituents of the World, then the substance of anyone of the encosmic entities is a mixture of them. Thus, for example, both the celestial bodies and the sublunaries are said to be composed of the same 4 constituents namely Fire, Air, Water and Earth.

To account for the many differences of the entities in the world, while the constituents of their combinations are the same, Proclus introduces the concept of "predominance" (epikrateia), the predominance of one appropriate constituent over the others.¹⁵ So, the celestial bodies are a mixture of the 4 Elements with Fire predominating, whereas the terrestrial are an analogous mixture but with Earth predominating.

Fundamentally, the mode of combination is a particular application of the general ontological rule that everything is in everything but appropriately in each. The mixing or combination itself (mixis, summixis, krasis) is equivalent to the first part of the rule, viz everything is in everything, whereas the predominance (epikrateia) is equivalent to the second part, viz. appropriately in each. "The 4 elements and each of them are called 'Elements' (ie pure constituents); for both heaven and generation are made from them (ek toutōn)"(28)."Likewise the substantially-existent (to ontōs pur) Fire is over-there (ekei) in the highest place and on this account the stars are fiery (ta astra einai puria), since they are allotted the place of Fire, and the summit (akrotaton) of Earth is also there. Inversely, the whole Earth (holē gē) is down-here (entautha), participating as much as possible to Earth in the last mode of Fire (puros eschatou) which is most earthy and gross (gēinōtatou k. pachutatou), and accordingly the Fire over-there possesses the summit of Earth (eiche tēn akrotēta tēs gēs)" (29). "And the 4 Elements exist in the heavens and under the Moon...therefore in the heavens there is a predominance of Fire, but under the Moon of Earth" (30). "For as the Earth

embraces (periechei) everything in a terrestrial fashion (cthoniōs), thus the heavens embrace everything in a fiery fashion; so that the one Element is the predominating (to epikratoun) and the others are included (perieilēptai) in it in a causal mode (kat'aitian)" (31).

Furthermore even the Elements, as cosmological entities, are said to contain admixtures from the others.¹⁶ "For if you want to examine each of the Elements, you will see much commingling in them; thus Air is not simply small in its parts (leptomerēs) for it also has something gross (pachu), moist-like and watery (homichlōdes kai hudatōdes); neither Water is simply easily-moved; for the last (eschaton) form of it is earthy and difficult-to-move (gēinon esti k. duskēniton); and the-commingled (summiges) part of fire resembles the obtuseness of air (eoike tē tou aeros amblutēti), and this is so of necessity; for the summits (akrotētas) of the second must join together (sunaptein) with the sediments of the first" (32). "The Demiurge made everything in everything (panta en allēlois) together with the conservation of distinction (diasōzein tēn diakrisin)" (33).

The dependence of the macroscopic differences of the phenomena on the predominance of one appropriate Element in the microscopic mixture of the same 4 Elements offered the following advantages, within the context of Proclus' system:

- (i) It preserved the homogeneity of the world, which assured the continuity and similarity between the different parts.
- (ii) It explained the difference between the celestials and the sublunaries without the need to postulate a separate Element, as Aristotle did.
- (iii) It retained as supplementaries the characteristic qualities of each of the 4 Elements, such as Fire's penetration and Earth's solidity. This provided a greater range of properties for the description of a thing than those from one Element only.

3. Movement in Proclus' philosophy is fundamentally related to the status of an entity in the hierarchy. Apart from the dynamics of procession and return, movement as the measure of change could also act as a kind of gauge of the entity's serial position within the order of the universe.

For example, the intelligibles are considered unmoved whereas the sensibles are considered in some way moved. The intermediary entities such as souls in themselves are given the principle of motion, after Plato, and therefore are called "self-moved" (autokinētos). The celestials, among the first members of the encosmic order to participate in souls, are also considered self-moved, but by participation as "living" beings, because they exhibit the observed order of the cosmos. The sublunaries, however, are called moved-by-another (heterokinētos) because they suffer from a predominance of materiality which makes them dependent on the continuous presence of a principle-of-motion for movement. Such a movement could never be orderly by itself.

Similarly, the Elements in their "intellectual" mode are called unmoved (akinēta), ie entirely unchanging, whereas in the psychical mode they are called self-moved (autokinēta) ie. containing the principle of change.

In the encosmic and sensible world the Elements acquire the appropriate mode of order or disorder. In their celestial mode they are still self-moved but by participation "And exactly as the thing which proceeds from life to the living (zōn) alters (exēllaltai), so does the thing which proceeds from the immaterial (apo aulou)-in essence towards the immaterial entities (ta aula)"; "The mode of the Elements...are self-moved and living (zōnta) but are not 'lives' per se (ouchi zōai onta)" (34).

In their sublunary mode however, the Elements themselves become subject to change as they are "moved-by-another". "By descending from that which is immaterial and unchangeable (ie the celestial

mode) you will produce the Elements which are subject-to-change (metāblēta) and enmattered; and this mode in itself will be inferior to the previous, but it will be similar to them through the order and symmetry of the movements and the unchangeability of the changes (tais metabolais ametablēsian) ...the mode of the Elements... is moved-by-another (heterokinēta) but moving in an orderly fashion (kinoumena tetagmenōs)" (35). The sublunary is the ordinary environment of terrestrial life, where the phenomena retain a measure of overall order despite the continuous changes. Proclus parallels this apparently self-contradictory state of affairs with the soul. "Furthermore the soul is one-single (mian) and possesses (echei) within itself both the divine aspect (to theion) and the irrational (alogon), and the soul in the divine aspect comprehends (periechei) the irrational powers in a rational fashion (alogous dunameis logikōs), by which it suitably directs (kateuthunei) and orders the irrationality. And neither is the unity (to hen) of the soul destroyed (apolōle) by the different substances in it, nor is the multitude (by the unification), for these parts or powers exist differently in the better aspect (viz the divine) and differently in the worse (viz the irrational)" (36).

In their final, subterranean mode, the realm of Tartarus, the Elements become completely disorderly, tumultuous and confused, probably because they encounter the remains of the "jiggling" of the primeval chaos.¹⁷ "But if you descend even from this order (viz. the sublunary) and survey the much discordant (plēmmeles) and unstable (astaton) mode of the Elements, you will see the last-ultimate Elements of all ... The mode of the Elements is disorderly (atakta), tumultuous (tarachōdē) and confused (sunkechumena)" (37). Yet it seems that materiality is not in itself solely responsible for disorder. As Proclus declares, "the discordant (plēmmeles) and disorderly (ataktos) flux and motion of the bodies (rhoē tōn somatōn; cf Plato Theatetus 152 E)¹⁸ is produced sometimes (pote) by the lack of power (adunamian) of the creative and defining principles (logōn), and at other times by the excess (pleonexian) of matter" (38).

NOTES ON II.A.4.1

- 1 Real Ideas for the Four Elements see, Plato Tim.53C-55C; 55D-57C; 51A-52A; 50C; 51A-B.
"All-perfect tetras" Proclus Pl.Th.III 64,22.
- 2 In Tim.III 113,24-114,4.
- 3 Eg. Pl.Th.IV 88,6
- 4 Cf. Pl.Th.IV 88.
- 5 As "formal aggregates" in Intellect, In Tim.III 110,14-30.
- 6 Elements described as "noeric", In Tim.II 48, also II 45,28-46,4.
- 7 In the psychical mode, In Tim.II 46,4-11.
- 8 The celestial bodies described as relatively immaterial, In Tim.II 46,18 and see II.B.3 .
- 9 The sublunary mode of the Elements, In Tim.II 46,20.
- 10 Differences in properties of the same Kind-Element accounted by size, cf. Plato Tim.58C-E ref. to Fire; also see the ch. on the Platonic background.
- 11 That the "pure" forms of fire do not burn, as opposed to the coarser which do, Plato Tim.58C; this gave rise later in the Middle Ages to the doctrine of "empyrean" sphere.
Also see the Proclan frg. in Philoponus' De Aetern.Mundi where the point is made quite specifically that the same kind of Fire exists both in the celestial and the sublunary realm, the difference being in the grade, or mode, as in Plato.
The refs. to the "vital" fire are probably from the notion of vital heat, in Aristotle, cf. F.Solmsen "The vital heat, the inborn pneuma and the aether", Journal of Hellenic Studies lxxvii (1957) p.119-23, or may simply refer to the violent, forceful nature of sublunary, "burning" fire.
- 12 In Tim.II 11,13-17; and see Festugiere's explanatory note on the incubi, Comm. sur le Timee III p.34. Etruscan women must have had quite a reputation, but what of the men, no succubi?
- 13 Eg. In Tim.II 47,2
- 14 In Tim.II 13,9; II 44,9; 46,27.
Cf. Plotinus Enn.VI 3,4 hulē being described as hupodochē and hedra ; also cf. Cornford "Plato's Cosmology" p.199f, Plato's description of the Receptacle as a winnowing basket.

- 15 The physical role of "predominance" in determining the overall movement of a compound body, Aristotle de Caelo 268b 26 f. This also features in the theories of motion and weight of the Middle Ages.
- 16 Cf. Plato's theory of materials based on the four Elements, eg. Tim.59D4-E5, Fire mixed with Water; and A.E.Taylor p.418.
- 17 This is Plato's notion of chaos prior to form and order of the Demiurge, Tim.52D-53A; 30A; on the state of agitation, see Taylor p.351-5, and Cornford p.198-207; also the art. by G.Vlastos in R.E.Allen Studies in Plato's Metaphysics, art.27 "The disorderly motion in the Timaeus" (orig.1939) enlarged to "The creation in the Timaeus: is it a fiction? (1964).
- 18 "Rhoē", bodies in a state of flux, the characteristic term attributed to the philosophies which emphasized the importance of "becoming"; the famous "everything is in a state of flux" however, seems to occur first in Simplicius In Physica p.1312-3.

4.2 AETHER'S STATUS

Although Proclus rejected the Aristotelian use of Aether as the Element of the celestial bodies, he still used the term "aether" in a variety of contexts. These include the adjective aetherial (aitherion) to indicate the tenuity (leptotēta) of the substance of a thing, for example the "vehicle" of the soul¹ and the medium in which incorporeal entities are said to manifest themselves.² As a noun, they mainly refer to a state which is semimundane or semi-material, in other words, to an "intermediary" state of existence. Proclus draws his references for these from non-Aristotelian sources such as Orphic, Pythagorean, Platonic and the so-called Chaldean.

For example, there is the Orphic Aether which Proclus identifies with the intelligibles. Aether also features as the Meadow (leimōn) of the Platonic Myth.³

The general triad which Proclus constructs from Platonic sources is the heavens-aether-earth.⁴ This conveniently corresponds well with the Chaldean-based triad, empyrean-aetherial-material (hulaia), since, as Proclus does not fail to repeat, Plato had said that the heavens are made mostly of Fire.

There is also a tetrad which he appropriately calls Pythagorean, according to which, "the Elements of the world exist in a celestial (ouraniōs), aetherial (aitheriōs), aerial (aeriōs) and in a terrestrial or subterranean (chthoniōs) mode" (39). The tetrad, elsewhere,⁵ takes another form; aether and water, earth and air; although this is not called Pythagorean. This particular tetrad seems to consist of two pairs of opposites as in the Empedoclean or Aristotelian schemes: earth opposite air, and water opposite fire, but in this instance fire=aether.

Furthermore, there is even a pentad of elements of the world: earth-water-air-aether-the heavens.⁶

For Proclus all these different arrangements express the same thing. Namely, aether is not the Element of the heavens but the first element of the subcelestial and sublunary domain, at the beginning of generation.⁷ Aether, in such elevated place, is most similar to the substance of the celestial realm, which is fiery par excellence, but is not exactly like it. Thus, aether seeks to imitate the unceasing rotation of the celestial sphere. "For the fire in the domain of generation is a certain effluence (aporrhōia) of the celestial fire and exists in the interstices (koilōmasi) of the other Elements but a sphere of Fire per se does not exist, but the upper extremities (akra) of Air imitate the purity of the upper fire (anō puros). And we say that these (ie. the extremities of Air + Fire) are sublunary fire and is the place of fire under the heavens (puros topon tou hupo to ouranō); for that is most similar (homoiotaton) to the celestial realm (ouraniou bathos), just as the lower limit (peras tou aeros) of Air with Water is thick and misty. This also Aristotle seems to have had in mind when he thought fit to call thus the fire which is down-here, but that which is directly under the heavens and which he says is carried around together (sumperipheresthai) with the celestial revolution he called fiery-like (puroeides)" (40). "Therefore the really-existing fire (ontōs pur) is in the heavens but the purest of the sublunary fire is in the Air which is next to the celestials, which Plato further on (Tim 58D1) calls aether" (41).

This definition of aether makes it identical with the Aristotelian "combustible material" (hupekkauma) at the top of the atmosphere.⁸ This band of fiery-like substance was thought to surround the atmosphere and be in contact with the celestial Aether. The friction between Aether and the fiery-like substance, which Aristotle described as a warm and dry exhalation from Air proper, would periodically ignite the combustible material in various forms. This resulted, according to Aristotle, to the atmospheric phenomena such as the shooting stars, the comets and the Milky Way.

Simplicius, in his Commentary on de Caelo, quotes the term "hupekkauma" in his discussion on whether circular motion is natural to the Elements. Like Proclus, he does not fail to see that Aristotle had effectively admitted that the fiery-like substance has a circular movement in a natural fashion, although Simplicius calls it "above-nature (huperphuēs)". He also places Proclus in an august circle: "therefore even Ptolemy, Plotinus, Proclus and Aristotle himself said that the combustible material is moved (viz. in a circular fashion)" (42).

NOTES ON II.A.4.2

- 1 Eg. In Rep.II 187,18-30, on the tenuity of the vehicle.
- 2 In Rep.II 242.
- 3 The Orphic Aether, eg. In Tim.I 176,13; III 208,30.
As the "Meadow" of the Platonic Myth, Rep.614-5, eg.
In Rep.II 163,24.
- 4 Eg. In Rep.II 157,15; II 135,20-25
In Plato, "aether" as the purest form of air, Crat.410,
Phaedo 109-110, Tim.58D, is arranged after the fiery domain of
the gods - aether corresp. to the "daimons". The same arrang.
is maintained even in Philip of Opus' "Platonic" Epinomis,
the dialogue where aether appears as a fifth kind; see Epin.
984B-C, aether coming next after fire, fire being reserved for
the celestial gods. Such "aether" is non-Aristotelian, even
as "fifth" body; see the pentad, note 6.
Also cf. Chalcidius' Comm. on the Timaeus (4th c.AD, in Latin),
c.122 p.187, c.178 p.227-8, where the order of the world is
given as the planets, the Sun, the Moon, aether, air, the moist
of water and earth; cf. Proclus In Rep.II 130.
Aether as a pure air can be found in Empedocles, interchangeably.
- 5 In Tim.III 171,8-10.
Aether as fire seems to stem from Anaxagoras, frg.1, aether and
air being the principal components of the "mixture"; also see
Aristotle's report that Anaxagoras used "aether" and "fire"
interchangeably, de Caelo III 302b 4.
- 6 In Rep.I 193,7.
- 7 Also see In Rep.II 256,12-14; II 189,23-190,1.
As J.Dillon observes, "The Middle Platonists" p.49, 170, 315,
Middle Platonists such as Plutarch and Apuleius assimilated
the Stoic pure fire with the Aristotelian aether into a four
Element scheme; thus "aether" was seen, effectively, as a pure
form of fire, that is by comparison to the sublunary fire.
As he rightly points out the debate shifts on to the intelligibles
and sensibles, with the celestials seen as intermediaries, cf.
II.B.1, and away from the five or four Element schemes.
However, Proclus' neo-Platonism certainly marks the subjugation
of the Aristotelian Aether (and the pneuma) to Fire, esp. in
the form of light.
For Proclus aether is something sublunary, and on this basis
certain works which are attributed to him, but which treat aether
as a celestial Element, must be looked upon with even greater
caution: they are chiefly the astrological works, the
"Paraphrase" and the "Commentary" on Ptolemy's Tetrabiblos, and
the lesser known "Uranodromos". It is, nevertheless, possible
that they are not intended to represent Proclus' own views but
be mere commentaries, or notes, much like the

(note 7 cont.)

(note 7 cont.) "Elements of Physics", a summary of Aristotle's theory of motion of the Elements, see II.A.5.

8 See Aristotle Meteorologica I 339b-346b.

4.3 LIGHT

Light and light-related philosophy is one of the central characteristic features of Neoplatonic thought. From Plotinus onwards, the image of the emanation and the diffusion of solar light through all the world typified the ubiquity of unity, goodness and order. Just as light is flowing out of the Sun without weakening the source, so the unity, goodness order and all the realities of the Universe emanate or proceed from the One and Good source of All without affecting or abating it.

The Plotinian light was primarily an incorporeal power.¹ "The impossibility of vision without an intervening substance does not depend upon that absence in itself; the sole reason is that, with the absence, there would be an end to the sympathy reigning in the living whole and relating the parts to each other in an existent unity " (43). "Light is not accidental to something else, requiring therefore to be lodged in a base; nor is it modification, demanding a base in which the modification occurs; if this were so, it would vanish when the object or substance disappeared; but it does not, it strikes onward...we may gather that the light never was an attribute of anything, but is the expressive action proceeding from a base (the Sun)" (44). "The light therefore which emanates from bodies is an outgoing activity of a luminous body, the light within luminous bodies, such are primarily luminous, is the essential being embraced under the idea of that body...And light is incorporeal even when it is the light of a body" (45).

The Platonic light, however, like of the pre-Socratic physicists, was corporeal. It was the purely illuminating emanation of Fire which is not hot and burning in itself. Such a view enabled Plato to regard the luminosity of the celestial bodies the same as the luminosity of terrestrial fires.²

These two views were not held as antagonistic. Plotinus, for

example, admitted them both: "Plato himself supports this when he says 'God kindled a light in the second circuit from the earth (Tim 39B) meaning the Sun... This light is a body, but another light shines from it which has the same name which we say is incorporeal. This is yielded from that first light, shining out as its flower and splendour; that first light is the truly bright and clear body" (46). These two views of light appear also in Proclus but in their appropriate realms of existence. Thus the view of light as an incorporeal power seems to be the one which delineates the whole system of procession return, and participation, and is especially manifested in the so-called "solar" series (see I.B.1.3; 5.1). The corporeal view of light is found in the more physical subjects of the encosmic realm.

Proclus' conception of light has, therefore, the following modes:

1. Incorporeal light as the divine, or the intelligible light, with all the concomitant attributes.
2. Corporeal light, in a pure and unmixed form. This light is still perceptible by the intellect only, since as unmixed it is not resisted by another Element: "for Fire itself in itself (auto kath' heauto) by being unmixed (amiges) with the other Elements is in no way visible by the senses (oudamōs horaton) but is perceived mentally only (monon epinoeital)" (47).
3. Corporeal light, but in a mixed form. Such light can be perceptible by the senses, since light in its mixed state may be resisted by another Element, especially Earth.

Of these, the first one mainly refers to the truly metaphysical light and does not seem to be associated with the Elements as such. Indeed, light in this mode is said to emanate from the One. The corporeal modes of light are invariably called "species of Fire" — paraphrasing Plato Tim 58C — and are therefore more directly associated with the Elements.

The pure or unmixed light most probably corresponds to the so-called immaterial (aulon) but corporeal light, which Proclus

employs, like his predecessor Syrianus, as the constituent of Space and the first body-vehicle of the soul. In this most tenuous state (leptotaton) light could satisfy the philosophical criteria of impassivity (apathes), interpenetration (chōrein) and extension (diastēma) necessary for a concept of Space, and the main requirement of imperishability (aphtharton) for the vehicle (ochēma) of the incorporeal and immaterial soul. The celestial light seems to be an intermediary. Although celestial fire shares in the imperishability of the pure and unmixed light itself, it nevertheless can be found mixed with the other Elements, albeit with their "summits", and especially with the resisting Earth (ie. the celestial and visible bodies). Material (ie. gross-material) light, however, always appears mixed with the other Elements. It is visible and perishable, since, like a man-made fire, there are times when it ceases to be. Furthermore, since such light is an emanation from a material fire, it is in most cases accompanied by heat and burning.³

As mentioned earlier, Proclus calls light a species or form of Fire (eidos on puros).⁴ An additional piece of evidence in support of this for him, is the similarity between the shape of the cone of emitted light and the pyramid of Fire's corpuscle. "For the eye is the most elevated (anōtatou) of the sensory organs (aisthētērion) as Fire is the most elevated of the Elements and uses acute-angled activities (oxeiais energeiais) like the other, for the conical form of visual emission has no small similarity with the pyramidal form of Fire (to te kōnoeides homoiotēta echei pros to puraoeides ouk oligon)" (48).

Yet, in his system, light itself always seems to be something more than Fire. Indeed it is on this point that Simplicius criticizes Proclus' statement that light is the most immaterial of all Elements and the most incorporeal kind of Fire; "However if light is a species of Fire, as we have learned from the Timaeus, and the species is not superior to the genus (eidos ouk eīē ton genous kreitton), then light would not be superior

to Fire, as against to what is said by Proclus...And possibly it indicates the luminous vehicle (augoeides ochēma) of the World-Soul (pantos psuchēs), as Porphyry interpreted it, but it could also indicate something else. But when the Oracles say that the Soul which is the primal source (pēgaiian psuchēn) 'On high animates light, fire, aether, the worlds', meaning that light is different from the empyrean, aetherial and the material (hulaion) and that it is above all others, this could be understood in terms of division by dichotomy (antidiaireseōs)" (49).

The more complete version of this Chaldean Oracle can be found in Proclus' Commentary on the Republic, which most probably is the source for Simplicius' comment. Proclus explains that the primary distinction is between unmoved and moved; this is the "dichotomy" to which Simplicius is referring. Thus the Chaldean tetrad consists of a monad which is unmoved, viz. light, and a triad which is moved, viz. fire, aether as an intermediary, and lastly the "worlds" which are called material: "But light is different from all the others (phōs allo para tauta panta) and is superior and prior to all the others (pro pantōn) which are said to be animated (psuchousthai) by the primal-source Soul. This indicates, I believe, that light is a body different from the worlds, aether and fire...But if the empyrean is the first-most (prōtistou tōn kinoumenōn) of the moved, clearly then light is unmoved by being given an order above fire; and as the aether contains (sunechei) the material worlds, and the empyrean contains both the material worlds and the aether, so the light contains all (panta)" (50). These repeated references to the supra-elemental status of light, despite it being called a species of Fire, are not surprising because they point to the "divine" origin of light.

Proclus' answer to the possible accusation that light in his scheme is in effect a fifth Element in the Aristotelian sense would have been, that light is indeed a species of Fire but is its most immaterial and pure (eilikrines) form, and is therefore

the "summit" (akrotēs) of Fire and consequently of the other Elements. Simplicius seems to have admitted that only such an interpretation would be consistent with Proclus' philosophy, for in the same passage as above he continues: "But possibly this light is the monad of the triad of the worlds, which he himself confesses. It is a monad not in the sense of being the place (ouchhōs topos) of the three, but in the sense of being a single cosmos prior (pro) to the three. For there must be also one prior to the three, just as the triad is prior to the hebdomad. And this monad he perhaps (isōs) called 'light', both because of its being (hōs..onta) the flower of the empyrean firmament (anthos tou empuriou stereōmatos), and of its being the common element of the phenomenal and visible (phainomenou), sensible (aisthētou), corporeal universe (sōmatikou pantos)" (51). Consequently the above tetradic arrangement, light-fire-aether-the material worlds, may be re-written, in view of Proclus' conceptions of light and aether as: light, the summit of fire-fire-sublunary fire with air-air proper, water and earth.

NOTES ON II.A.4.3

- 1 Eg. R.T.Wallis "Neoplatonism" p.61-2.
For other aspects of Neoplatonic light, also see S.Sambursky "The physical world of late antiquity" p.111-117; and J.C de Groot "Philoponus on de Anima II.5, Physics III.3, and the propagation of light" Phronesis 28ii (1983) p.177-196, who examines the employment of the Proclan dunamis and energeia for the transmission of light.
Also cf. M.Hesse "Forces and Fields" (1961) p.77-80 on light and the emanation philosophy of Neoplatonism;
- 2 Three kinds of fire or light, daylight, a pure fire not admixed with other elements, the visual current, like the daylight, and flame, the light of material objects;
Plato Tim.45f, also 58C, 67D; see Cornford p.152, Taylor p.277-283, 410-11.
- 3 In Tim.II 8,22-25; also see the frg. on light in Philoponus' de Aeternitate Mundi, Arg. the first, p.18-19, p22-23.
- 4 Eg. In Tim.II 47,9.

4.4 THE VEHICLE

Another important entity, which is also characteristic of Neoplatonism, is the subtle body (lepton sōma) or vehicle (ochēma) of the soul.¹

Its importance lies in its intermediary status between the immaterial and incorporeals and the material corporeals. Consequently the body-vehicle functions as the mediating carrier of the soul in its interaction with the physical world.

Proclus' theory of the vehicle assumes the existence of two such vehicles, excluding the material vehicle (huliaion ochēma) the shell-like (ostreōdous sōmatos) material body itself.

The first vehicle to be directly ensouled is the famous luminous (augoeides), aetherial (aitherion, aitherōdes) or astral (astroeides). This is the perpetual and first substrate-body of the soul.

"Every participated soul makes use of a first and perpetual body (prōtō aidio sōmati) whose hypostasis is not in generation (agenēton) and is imperishable (aphtharton). For if every soul is essentially perpetual and if by its very being it firstly ensouls some body (prōtos psuchoi ti tōn sōmatōn), it must ensoul it perpetually (aei); for the being (to einai) of every soul is unchangeable (ametableton)" (52). Because of this direct relationship with the soul, it was also called "innate" (sumphuton), coining an Aristotelian term.

The grade of soul which has this kind of vehicle is appropriately the immortal (athanaton) and rational (logikēn). As it descends towards the realm of generation, subject to its momentum (rhōpē) to incarnate, it was said to acquire increasingly material envelopes or "mantles" (chitōnes) which consist of the four Elements.²

These successive envelopes of the 4 Elements constitute the equally

famous spirit body or pneumatic vehicle. It was called the "attached" (prosphuton) vehicle by contrast to the first which is "innate". More precisely, the pneumatic is not the vehicle of the soul in itself, but is the vehicle of the "descended" mode of the soul, when it has acquired the irrational faculties. This mode is in effect the irrational soul (alogos) which is subject to the perturbations of generation and necessity. Appropriately, it was called the mortal (thnēton) soul.

During the "ascent" of the soul back towards its origins, both the mortal soul and the associated pneumatic vehicle are purged away and perish while the elemental envelopes are discarded in their respective regions. Hence the pneumatic was also called the "perishable" (phtharton) vehicle, although it is by comparison longer lasting than the even more perishable earthly body.

Proclus' theory of the vehicles bears two similarities with his order of the Elements.

Firstly, the Proclan distinction of two intermediary vehicles, as opposed to the previous usually one-vehicle theories, seems to parallel the scheme of two intermediary Elements between Fire and Earth. By this I do not mean, that there is necessarily a straight correspondence between the tetrad of the Elements and the tetrad, soul - luminous vehicle - pneumatic vehicle - earthy body. I mean, instead, that there may have been an underlying philosophical thesis which postulated the existence of two "intermediaries" between a form-like state of existence and a substrate-like one.³ Evidence for this appears in a passage where Proclus relates Iamblichus' views on the two intermediaries between solids: "And appropriately there are two intermediaries for the composite things (epi tōn sunthetōn); for the dyad is the supplier of all complexity and division. And each of the composite things is composed of many substances and powers (ousiōn kai dunameōn), wherefore there are many intermediaries which are at least double

(dittai toulachiston); for the intermediary according to the form is different from the intermediary according to the substrate (allē gar kata to eidos mesotēs kai allē kata to hupokeimenon)" (53).

Proclus had elsewhere⁴ said that Fire is analogous to form, and Earth analogous to substrate, so in the case of the tetrad of the Elements, Air would be the intermediary directly related to Fire, whereas Water would be the intermediary "according to" Earth. Similarly for the vehicle-related tetrad, if it can be assumed that soul is also form-like by comparison to its substrate material body, then according to the previous statement there should be an intermediary more directly connected with the soul, which is the luminous vehicle, and another one connected more with the body, viz. the perishable pneumatic vehicle.

Secondly, the adjectives of the first vehicle and the composition of the second seem to parallel the relation between light and the 4 Elements (see Ch. 4.3 on light). "Luminous" is an obvious reference to light. "Astral" is also attributable to light, since the celestial region is mostly of Fire and is the region of the solar light: the first vehicle was also called solar-like (hēlioeidē).⁵ "Aetherial" is problematic since for Proclus "aetherial" can either be a general reference to tenuity, or a more specific reference to aether. The second, more specific, option can be excluded since the Proclan aether is not the celestial Element but a form of sublunary fire, ie. it is sub-"astral". The tenuously aetherial option is therefore the more likely, especially since it relates directly to the subtle or tenuous (lepton) body of the vehicle. It can also be related to light itself, since Proclus refers to the visual emission of the eye as "aetherial": "that which is visible...is Fire... because sight is light (hē opsis phōs estin), emanating an aetherial substance (ap' ousias proiousa aitherōdous)" (54).

Yet confusingly, in a passage from a later work, the "Platonic

Theology", the Elemental souls are said to have both a luminous vehicle and "aetherial envelopes". Here the "aetherial envelopes" of the Elements should read the second, pneumatic vehicle. "For the celestial souls rule over simple bodies which are immaterial and unchangeable (kata tēn hupostasin aulōn kai ametabolōn); but the souls which have dominion over the wholes of the Elements (tōn holōn epikratousai stoicheiōn) are also (hama men) covered with aetherial envelopes (aitherious chitōnes), through which they preside on the wholes of the Elements, which as wholes are everlasting (aidiois) and simple, but as enmattered they receive perishability (phthoran) and generation due to their composition (sunthesin) from dissimilar parts (ek tōn anomoiōn)" (55).

NOTES ON II.A.4.4

- 1 The pioneering study on the vehicle theory, in this century, is G.R.S Mead "The doctrine of the Subtle Body in Western Tradition" (1919). The first scholarly examination of the Neoplatonic vehicle is, R.C.Kissling "The ochema-pneuma of the Neo-Platonists and the de Insomniis of Synesius of Cyrene", American Journal of Philology 43 (1922) p.318-330, who together with Mead appreciated the background to Proclus' two-vehicle theory, a fact which passed totally unnoticed by A.J.Festugière in his transl. of Proclus' Comm.on the Republic (1970) as well as by Kroll in the Teubner text ed. of In.Rep. (1901). More well known is E.R.Dodds' broader study of the Astral Body in Neoplatonism, Appx.II of his "Proclus on the Elements of Theology", which traces its development from the various notions of "subtle" bodies, incl. Galen's, to Proclus and the Cambridge Platonists, esp. Ralph Cudworth. On Proclus' vehicle an important art. is, J.Trouillard "Reflexions sur l' ochema dans les 'Éléments de Théologie' de Proclus", Rev. des Études Grecques 70 (1957) p.102-7, which points out the links with the theory on matter and the pair finite-infinite.
- 2 Eg. El.Th.209.
- 3 See II.A.3 and 4.1; cf. In Crat.93,25-29, where intellect is likened to Fire, soul to Air, phusis or irrational soul to Water, and body to Earth.
- 4 In Tim.III 113,24-114,4.
It has been pointed out to me by M.Baigent, that Fire-Air, Earth-Water has also astrological implications.
- 5 "Aetherial"= "solar-form", In Tim.III 194,30.
With regards to the appellation "astral", E.R.Dodds states that it does not seem to occur earlier than Proclus, op.cit. p.313, ftnote 4.

5. THE MOTION THEORY OF THE ELEMENTS

Proclus' theory of motion regarding the Elements is "that every simple body ($\bar{s}\bar{o}m\bar{a}$ haploun) which is in its own proper place ($\bar{o}i\bar{k}e\bar{i}\bar{o}$ topō) either remains stationary, or is moved in a circle; for if it moves in a different manner ($\bar{a}l\bar{l}\bar{o}s$), either it is no longer in its own place (\bar{e} ouketi estai en tō autō topō), or is not yet in it (\bar{e} oupō estin en autō)" (56).

This seemingly Aristotelian theorem was in fact part of a long-standing criticism of Aristotle's Aether. Proclus cites Plotinus and Ptolemy as the other personalities who had participated in this line of criticism.¹ According to Simplicius, it had commenced with the 1st C BC Peripatetic Xenarchus and included, as Proclus said, both Ptolemy and Plotinus. The debate centred on the question of natural motion of the Elements in relation to proper place.²

Thus, according to the above statement, the true state of motion of the Elements is either circular by imitation of the cosmic circumference, the heavens, or stationary like the cosmic centre, the earth. The upward and downward movements of the Aristotelian theory are not the natural movements of the Elements. Instead, they are the movements of those corpuscles of the Elements which are not in their natural place and are therefore desirous to move to it. Consequently they move in a manner which in itself is contrary to their own proper state of motion, viz. they move in a straight line. "For when Fire is carried upwards ($\bar{e}p\bar{i}$ to anō pherētai) it is in a foreign place ($\bar{e}n$ allotriō topō) and hence is carried upwards towards its own place, and likewise a lump of Earth ($\bar{b}\bar{o}l\bar{o}s$) is moved downwards ($\bar{e}p\bar{i}$ to katō), and in general the tendencies of the Elements to move in a straight line ($\bar{a}i$ ep' eutheias phorai) are those whose condition ($\bar{d}i\bar{a}k\bar{e}i\bar{m}\bar{e}n\bar{o}n$) is contrary-to-nature ($\bar{p}a\bar{r}a$ phusin). Therefore it is false to say that Fire is naturally moved upwards ($\bar{k}a\bar{t}a$ phusin). For it only has its own natural motion whenever ($\bar{h}o\bar{p}o\bar{t}a\bar{n}$) it occupies ($\bar{e}c\bar{h}\bar{e}$ topon) its own proper place, but when it tends to move towards its own

proper place, it does not yet occupy its natural place" (57).

The advantages which Proclus saw in this theory of motion were many:

1. It explained with^asingle principle both the celestial circular and the sublunary rectilinear movements of the Elements, especially that of Fire, and nullified the need for the Aristotelian Aether.
2. The theory accorded with the overall theme that entities behave appropriately in different "places". "And we must not be afraid of those who are especially skilled in dialectic (deinous tōn dialektikōn: viz. the Peripatetics) who by looking at some small part of Nature believe that are able to ridicule Plato, who say that Fire is moved upwards (anōpheres), whereas the stars are moved in a circle; for these opinions have no place in the case of the heavenly fire. For just as the intelligible fire (noētou puros)...does not have the same movement as the corporeal, likewise neither does the celestial fire have the same movement as the subcelestial (hupouraniou); for the types of movement (ai kinēseis) exist in accordance (sunuparchousi) with the order of the substance of the realities" (58).
3. It reduced the importance of the qualitative properties weight (barutēs) and lightness (kouphotēs), since the movements which are associated with them, namely the downward and the upward, were said to be contrary to the natural state of motion of the Elements. "For the characteristic property (idion) of all Fire (pantos puros) is to be visible, and not to be hot nor to float upwards (epipolastikon); and the characteristic property of all Earth is to be tangible and solid, and not to be heavy, sink downwards and to have a downward tendency (ou to baru kai huphizanon pasi kai katōphoron)" (59).
4. It accorded with a variety of metaphysical tenets which associated the lack of motion or the circular motion with unchangeability and perfection (cf. unmoved or circulating intellect or soul), and rectilinear motion with procession from or return to the entity's own state of existence (cf. soul's descent to and ascent from matter).

5. It enhanced the Platonic paradigm that such properties as up-down or gravity-lightness are relative,³ whereas circularity or stationariness are more objective or absolute. Furthermore it harmonized Plato with Aristotle in a fashion (one of the general aims of the Neoplatonists) by including the Elements' rectilinear movements (in Plato they were only driftings in a certain direction).

A problem of consistency with Proclus' theory on the motion of the Elements is why he promulgates the above theory of motion in the "Commentary on the Timaeus", whereas in the "Elements of Physics" he states the Aristotelian one:

"Definition VI. Every simple body (haploun sōma) is moved naturally (kata phusin) with only one movement.

Definition VIII. Heavy (baru) is the body which moves towards the centre.

Definition IX. Light (kouphon) is the body which moved away from the centre" (60).

"A simple body is moved with a simple motion (haplēn kinēsin) either with the circular (kuklō)...or with one of the rectilinear (ep' eutheias) movements, and if it is only moved away from the centre, then it is Fire, but if it is only moved towards the centre, then it is Earth, however if it is light by comparison to the one and heavy by comparison to the other, then it is one of the intermediary Elements (ie Air, Water)" (61).

The answer is that the "Elements of Physics" as a whole is a precis of Aristotle's motion theory as it appears in the "Physics" and "On the heavens", rather than an exposition of Proclus' own thoughts on the subject.⁴

The "Commentary on the Timaeus" clearly is not a summary of Plato's Timaeus (over 1200 pages of Commentary for 44 pages of the Timaeus) but is an extensive restructuring of it in the light of Proclus' Neoplatonism (although he himself saw it as an orthodox exegesis of Plato's teaching). The "Commentary on the Timaeus" is

effectively a dissertation on his own physical conceptualization which uses Plato's *Timaeus* as a framework.

NOTES ON II.A.5

- 1 Proclus cites Ptolemy and Plotinus, In Tim.III 114,31.
- 2 See Simplicius In de Caelo 11-50, on de Caelo I 2. Secondary literature on the criticism of Aristotle's Aether, as a fifth Element, and his theory of motion of the four Elements, as "gravity" and "levity", includes, S.Sambursky "The physical world of late antiquity" op.cit. ch. on Xenarchus against the aether, p.122-132; J.Longrigg "Elementary physics in the Lyceum and Stoa", Isis 66 (1975) esp. p.213-229, an account of the criticism of Aristotle's cosmology from the early Peripatetics and the Stoics.

The other personalities which Simplicius, like Proclus, mentions as early promulgators of the motion theory, that when the Elements are in their proper place they either remain stationary or are moved circularly, are interestingly enough Ptolemy and Plotinus (Simpl. p.20). With regards to Ptolemy, the sources which Simpl. gives as ref. for this formulation are not extant: "On the Elements" (peri tōn stoicheiōn); the "Optics" is for the most part extant, but the first book, the most likely place for the theory, is not (see A.Lejeune "L' Optique de Claude Ptolemée dans la version latine d' après l' arabe de l'emir Eugene de Sicile" (1956)). With regards to Plotinus, the passage which has been identified with this theorem is, Enn.II 2,1. However, on closer examination, it does not exactly say that every Element moves in a circular fashion in its proper place. Rather it refers to Fire, which as a body moves rectilinearly upwards until it reaches its ordained place, which happens to be the outermost place of the world. There, since it can no longer move any further in a rectilinear fashion, its path curves as it glides under the heavenly arch. This, in my opinion, is linked to the notion of the "binding" of the heavens (see II.A.2). The true circular motion to which Plotinus is referring in the passage, as a whole, is the psychical one, which can affect the rectilinear one of the body.

From the evidence of Proclus and Simplicius, as well as that of Philoponus, arg.10 in the Aeternitate Mundi contra Proclum (p.380-403), it seems that in the dominant school of thought in Late Antiquity this theory of motion of the Elements came to replace the Aristotelian.

- 3 See Plato Tim.56D-57C; 62C-63E; on the drifting "tendencies" of the Elements, A.E.Taylor op.cit. p.390-6.
- 4 Cf. Ritzenfeld's introduction to the Teubner ed. of the text, and Rosán "The philosophy of Proclus" op.cit. on Proclus' works, El.Phys. is no.35 in Rosán's list.

6. SPACE, BODY AND MATTER

The entity which seems to bring best into focus the relationship between Body, Matter and the Elements in Proclus' system, is place. Like others, from Strato onwards and all the Neoplatonists, Proclus rejected the Aristotelian view that place is the boundary of a body and came to the conclusion that place is the space between the boundaries. Proclus' innovation was that space, the true place (to diastēma kai ho alēthōs topos), is an immaterial body, whose substance is light.¹

His reason for conceiving it as a body rests on the premise that only quantities of the same kind are commensurable (which implies that he accepted the Aristotelian Category that place or space is a quantity, cf. Arist. Categories 5^a, space is a continuous quantity; also 6^a, equality and inequality are predicates of quantity). "But if it were incorporeal, it would be absurd, for place must be equal (ison) to the objects in place (tō en topō), but how could body and incorporeality (asōmaton isa) be equal? For equality exists in quantities (en posois), and in particular in quantities of the same kind or genus (homogenesi posois), such as lines in respect of lines, surfaces in respect of surfaces and bodies in respect of bodies. Therefore, extension is a body, if indeed place is space-extension (diastēma ho topos)" (62). Inasmuch as a body is a solid and solidity always implies 3-dimensionality, then place-space as a body, for Proclus, basically means three-dimensional extension.²

But this notion of place as a body would have conflicted with the Aristotelian exclusion principle, that different bodies cannot occupy the same place at the same time. In other words, a body could never be in a place, if the latter was also a body.³

Philoponus solved this problem by making place an incorporeal void, but Proclus relegated it to the question of interaction between bodies. Like Syrianus, he saw materiality as the root of

the mutual susceptibility and division, when bodies come to penetrate each other. So, by regarding place as an "immaterial" body he assured its "impassivity" and its integrity when the other material bodies come to occupy it. In other words, such a body-of-space can be occupied by another body, since the immateriality of the former renders it unsusceptible to interaction with the materiality of the latter. "Therefore, place is an indivisible body (adiaireton...sōma; i.e. it retains its integrity). And if it is indivisible it would be either an immaterial or a material body (enulon). But if it were material, it would not be indivisible; for all material bodies undergo division when other material bodies penetrate them (chōrountōn), as when our body is immersed in water. Only immaterial objects cannot be divided by anything and this is by necessity; for every immaterial body is impassive (pan gar sōma aulon. apathes), but every divisible object is not impassive; for division is an affection or quality (pathos) of bodies which destroys unity, since also in a continuum qua continuum you will not discover any affection except the division destroying continuity" (63). "The immaterial body...neither exerts resistance nor experiences counter-resistance (oute antereidei oute antereidetai); for that which experiences resistance has the nature of being able to be acted upon (paschein hupo tōn antereidonton dunamenēn) by those who exert resistance. but the immaterial body neither divides nor is divided, being impassive" (64).

Proclus' usage of immateriality does not refer to matter as substrate, "I mean (legō) by 'immaterial' and 'material' (enulon) by reference to the most gross (pachutatēn hulēn) matter, which cannot sustain separate forms, and which stands apart (diistas) from the matter which always remains in its own-proper form in the same manner (tēn aei ōsautōs en tō oikeiō eidei menousan); because we learn that this matter (i.e. the substrate) pervades (diēkein) through all cosmos, just as the Gods say (i.e. the Chaldean Oracles); hence Plato proceeds to call matter 'the receptacle of the universe' (pantos hupodochēn)" (65).

Although the immateriality of Space or Place seems to be akin to that of the heavens (see Ch. 4.1 also Sect. B.3 the celestial body), it is substantially more immaterial. Viewed in hierarchical terms, the Proclan Space is, on the one hand, immediately next to the World-Soul. "For this space is immediately suspended from the World-Soul (apaiōreitai autēs) and is an organ innate (sumphues) to it" (66). But, on the other, it is superior to the corporeal and moving world, even the heavenly bodies, precisely because they move.⁴ "The unchanging but corporeal (ametabaton, sōmatikēn) life (viz. Space) must be intermediate between the incorporeal and unchanging life, such as that of the primal Soul (ie the World-Soul), and the corporeal life which does involve change of place (ie the moving bodies)" (67). "Place is an unmoved (akinēton), indivisible (adiaireton), immaterial (aulon) body. If it is such, it evidently is more immaterial (auloteron) than all the bodies which move, even the immaterial ones among them (tōn en tois kinoumenois aulōn: the celestial bodies)" (68).

Quite fittingly he allocated light to be the substance of Space. "Summing up all the arguments: Place is thus an unmoved, indivisible, immaterial body. If it is such, it evidently is more immaterial than all the bodies which move...Consequently, as light is the most simple (haploustaton) of all these...it is manifest that Place will be light, the purest (eilikrinestaton) among the bodies. Let us conceive (noēsōmen) two spheres, one made of light alone and the other of many bodies, both equal in volume (isas allēlais kata ton onkon). The former is placed homocentrically with the universe and the other is immersed (embibasas) in it. The whole cosmos will thus be seen moving in the unmoved light. As a whole it will be unmoved, so as to imitate Place (hina mimētai ton topon), but each of its parts will be moving (ie in relation to each other), so that in this respect the world will be inferior to Place (elaton echē tou topou)" (69).

Light had several features helpful for Proclus' concept of Space.

Firstly, the image of extended light also included the notion of "shape" or "outline", both corporeal characteristics. Plato regarded light as a body, in any case. But in Neoplatonic terms especially, the notion of extended or "filled out" shape was considered as a consequence of the procession into the corporeal and sensible world.⁵ "The Gods (ie. the Chaldean Oracles) advise us to consider the extended shape of light (morphēn phōtos). For being without shape above (anō amorphōtos) it becomes shaped (memorphōmenē) through the procession (prohodon)" (70). "For in the light, Proclus says, the shapeless (atupōta) things acquire shape, according to the Oracles. And because of that it may well be said that it is called place, 'topon', as being a certain shape, 'typon', of the whole cosmic body, making spatially unextended things (adiastata) to be extended (diastasthai)" (71).

Secondly, the diffusion of light would have filled every part of the world, presumably even the possible void interstices between the elementary polyhedra. Thus the "ball of light" would drown every possible void.

Thirdly, light allowed interpenetration by other three-dimensional bodies. In this Proclus was almost certainly inspired by Syrianus' image of interpenetrating beams of light. "They only say that it is absolutely impossible (adunatōtaton) for two material and mutually resistant (enula kai antitypa) bodies to occupy the same place, but that the immaterial ones are like lights (phōsin eoikenai) which, being emitted from different lamps (diaphorōn lampadōn), have interpenetrated (hechōrēkosi) throughout the same chamber and have gone through each other (pephoitēkosi) without confusion and without division (asunchutōs kai adiairetōs). For although one would call these lights incorporeal, they are nevertheless, through being spatially extended and stretched out together with (sundiastanta) bodies in the three dimensions (treis diastaseis), not prevented from occupying the same place as each other and as bodies, for no other reason than that they are simple (hapla) and immaterial (aula) and are not

split up (merizetai) when divided (diairoumena), but, through being joined together (sunēmma) with their source and depended on it (exērtēmena), they exist as long as the source irradiates (ellampousēs)" (72).

Fourthly, Place could be regarded as the luminous body-vehicle of the World-Soul, in accordance with the general rule that every participated soul should have its appropriate imperishable body. "Proclus says, that Place is animated (psuchousthai) by the primal-source Soul (pēgaias psuchēs) and has a divine life, being self-moved (auto kinēton) according to its intrinsic substance (ousiōdes) but not according to its external activity (kat' energeian)" (73). "Thus I (Proclus) know that even the best of the philosophers, Porphyry, suspected as much as we now write, when he proposed that light is the first vehicle (ochēma prōton) of the World-Soul" (74). "For this Space is immediately depended on the World-Soul and is its innate instrument (organon sumphues)" (66).

The notion of Place or Space as the direct instrument of the "informing" World-Soul accorded also with the notion that the World-Soul appoints the allotted place of each encosmic entity. This is the active rather than the passive and substrate view of Place, according to which it is the (accessory) cause of imparting appropriate places to the material world "below", and is unlike the later Philoponian place as the substrate-matter of body. "And if one wants to inquire into the active notion (kat' energeian kinēsin) of Place...one will see that Place is the motive cause (kinētikon) of the moving bodies which unfold (exelittontōn) the parts of Place (tou topou merē) as spatial extensions (diastēmatikōs)" (75). Furthermore this "active" view of Place coincided with the conception that the geometrical shapes of 3-dimensionally extended entities, such as the Elements, are full of "powers" (see Ch.3).

NOTES ON II.A.6

- 1 Also see I.B.7 and I.B.8.5. Additional ref. works:
P.Duhem "Le système du Monde" (1913-7) esp. vol.I p.333 ff;
M.Jammer "Concepts of Space" (1954) p.12 ff.;
G.S.Claghorn "Aristotle's Criticism of Plato's Timaeus" (1954)
p.5-19; E.R.McMullin (ed.) "The concept of Matter in Greek
and Medieval Philosophy" (1963) esp. p.39-58, art. by
L.J.Eslick "The material substrate in Plato"; E.Grant
"The principle of impenetrability of bodies in the history of
concepts of separate space from the Middle Ages to the 17th c."
Isis 69 (1978) p.551-571 (the account starts with Philoponus,
Proclus is not mentioned); also, D.C.Lindberg (ed.) "Science
in the Middle Ages" (1978) p.270, 272-280 art. by E.Grant on
Cosmology.
For Proclus' "space as the true place" In Tim.I 161,1-3.
- 2 Cf., In Tim.II 77, II 113,12, III 113,12-14;29-32, III 329,30-32.
Also see Plato Tim.53C, and cf. II.A.2 and the discussion on
physical planes and triangles & see A.E.Taylor "A Commentary on
Plato's Timaeus" op.cit. p.346-7 and p.362. According to M.
Jammer, op. cit., p.22-36, the Platonic "matter" developed
either as a kind of qualitless body, as in the Stoics, or as
the mere sense of corporeality, as in the Neoplatonists.
Also see the analysis of the definitions of tri-dimensionality
and corporeality in Sextus Empiricus Adv. Grammaticos, I 19-28,
Adv. Geometras, III 19-22, 77-91.
- 3 Aristotle Physica IV 1, 209a 5-7; IV 8, 216a 26-216b 11; cf.
211b 14-29; also see Philoponus In Phys. 557,8-28, 562,29-
-563,26, for example.
Philoponus' concept of Space has been the subject of a number
of papers delivered in 1983 at the Institute of Classical
Studies, London, inter alia, D.Sedley, D.Furley and R.Sorabji.
Also relevant is, of course, the Stoic concept of total
interpenetration of bodies and blending of qualities.
See, S.Sambursky "Physics of the Stoics" (1959) p.11-16, cf.
p.95-8, but esp. R.B.Todd "Monism and Immanence: the foundations
of Stoic physics" art.6 in "The Stoics" (1978) ed. J.M.Rist,
p.137-160; R.B.Todd "Alexander of Aphrodisias on Stoic Physics"
(1976) esp. p.28-49, where it is argued that the total blending
was only applicable to the relationship between pneuma and
matter, not to any interaction between encosmic bodies:
this would not be too dissimilar from Proclus' "immersion" of the
world into the light of Space.
- 4 Cf. Simplicius In Phys. 615,5-12, who is critical of Proclus'
def. of "immaterial body".

- 5 The formulation of light, spatial extension and filled-out shape through the "procession" is the origin of the light-metaphysics of the Middle Ages, eg., John Eriugena (9th c.) and Robert Grosseteste (1168-1253).
Other Proclus ref. In Tim.II 6, II 79-80, III 328,1-7.

SECTION B. THE CELESTIAL BODIES.

Introduction.

Proclus' grasp of the mathematical complexities of Ptolemy's "Syntaxis", in Hyp. Astr., is particularly noteworthy as it demonstrates amply that interest in mathematical astronomy was maintained at a high level in an age which is supposed by a number of scholars to have been marked by a decline in science. Indeed, in an epigram (Paton, III p.105) Proclus' name is linked to that of Theon of Alexandria, Hypatia's father and author of important comm. on the "Syntaxis": "Theon and Proclus the all-wise...Both are worth of equal praise...for Theon, assuming the learned propositions of Proclus, demonstrates by these the courses of the stars; while Proclus, assuming the demonstrations of Theon, resolves and propounds his positions by their aid. All hail, learned pair".

However, he distinguished sharply between the mathematical and the dynamical or physical accounts of the celestial bodies and their motion. He considered the various epicyclic, eccentric and "counteracting" spheres as mathematical devices not as "real", physical spheres carrying the stars.

Thus his theory on the constitution and dynamics of the heavenly bodies is part of his overall philosophical system of explanation regarding the "real" entities of the universe.

1. THE STATUS OF THE CELESTIAL BODIES

The ranking and the mode of existence of the heavenly bodies in Proclus' system reflects the traditional Greek belief in their "divine" orderly nature.

The attribute of divinity (theion) was used in all periods in a wide and loose sense without necessarily meaning cult worship. In philosophy, the earliest (pre-Socratic) usage of "divinity" related to the nature of the "ultimate principle" (archē) of the world and the presence of motion; in Anaxagoras for example, nous, the motive and purposeful principle of his cosmology, was called divine for this very reason. The heavenly bodies were thought to be divine not because they were regarded as gods for religious worship, but simply because they were seen to exhibit order and regular, eternal motion. These characteristics made them the appropriate objects for philosophical contemplation, and supported the notion of an orderly, eternal, intelligible world "over-there" (ekei) as opposed to the disorderly, transient, material world "down-here" (entautha).¹

Proclus places the celestial bodies between the intelligibles and the sensibles. Like the intelligibles they are everlasting but like the sensibles they are perceptible. Their motion is basically orderly, but because of their hierarchical proximity to the disorderly material domain, the planets in particular exhibit a certain limited irregularity. "For as we begin (eis archēn kathistametha) the comprehension (katanoēseōs) of the celestials with these instruments down-here (tēde organōn : ie. the astrolabe etc), likewise the celestials over-there (ekeinōn) remind us (anemimmēskometha: ref to Plato's theory of knowledge) the invisible circulations; for the heaven is intermediate (mesos) between the generated entities (genēton) and the intelligible (noēton)" (76).

"...the irregularity (anōmalian) is attributed to the stars themselves (tois astrois autois) but this irregularity has a certain order (to tetagmenon) — for it recurs (apokathistatai pros heautēn) in

fixed periods of time (tetagmenōn chronōn) — since the wandering stars are intermediate (mesois) between those which are moving regularly in every way (homalōs pantē) and those which are moving irregularly in every way (anōmalōs); for they are allotted a movement which is regularly irregular (homalōs anōmalon) or irregularly regular (anōmalos homalēn)" (77). "The wandering stars (planoumenōn) ...have varied and complex (poikilas) movements, but orderly (en taxei) and according to certain measures (metra) and bounds (horous); for their simplicity (haplotēs) contains the plurality (plēthos : of movement), their order confines (sunechei) the variety (poikilian), and their measure delimits (horizei) the wandering (tēn planēn)" (78).

There are certain, intended, affinities between the celestial objects and the mathematical entities, in Proclus' scheme, for the latter are also placed in an intermediary order between the (proper) intelligibles and the sensibles (although the mathematical as incorporeal entities are hierarchically "higher" than the celestials): "...the intelligibles (noēta), the physical (phusika) entities and their intermediaries which are usually called mathematical, considering that everything is in everything appropriately, in the intelligibles presubstist both the intermediary and the last (ie. both the mathematical and the physical) as principles (archēgikōs), and in the mathematical exist both the first as images (eikonikōs) and the third (the physical) as paradigms, and in the physical exist the appearances (indalmata) of the previous" (79). (ie. in the mathematical there exist images of the intelligible and paradigms of the physical). Besides, the description of the celestial orbits constitutes the mathematics of Astronomy, and the various horoscopic calculations the mathematics of Astrology.

The celestial bodies, therefore, may be said to exhibit first and best the mathematical and incorporeal proportions in the physical world, yet inasmuch as they are mobile bodies the "proportions" are only relatively precise. "In the mathematical proportion (analogia) possesses the exact and scientific quality (to akribes kai to epistēmōnikon). Whereas in the physical entities (en tois

phusikois) it is no longer the same case; but such proportion as it exists in the celestials partakes of a certain exactness (metechei tinos akribeias). (note the hierarchical relationship between mathematical and celestials, the latter "participating" in the former; see Part I.A.1)...The celestials are in a certain respect closer to the exact proportions (sungenstera pōs esti tois akribesi logois)" (80).

The heavenly objects may be immaterial and everlasting or unchanging, but only relatively so - relatively to the sublunary, changeable matter. This relativity is sufficient to make them change in Aristotelian terms by loco-motion, which, in the case of the planets, extends in all the six directions of longitude, latitude, and "depth", meaning distance from earth. Thus for Proclus the celestial bodies are the philosophical causes² of change within the corporeal and physical world (see term enkosmios in Part I.B.8.1).

"The heaven is immaterial as far as it is possible in the sensibles (aulos hos en aisthetois estin)" (81). "It is requisite that the cause of complexity (poikilias aitian) and the principles of contrariety (enantioseōs archas) are anticipated (proeilēphthai) in the heavens; or how could the heaven (ouranon) comprehend the generation and how could it guide (podēgetēsei) the transformation (metabolēn) of the sublunary elements if it did not contain in itself the principle of contrariety?" (82). "And because generation (genesis) is undividedly joined (sumphuōs sunēptai) to the heaven... the lower end (peras) of the heaven is not entirely without a share in change, since it comes close (pelazon) to generation"(83).

"The local movement (topikē) is superior (kreittōn) to the other (change-movements: Proclus has already ref. to Aristotle), and of the local movements the one in-a-circle (hē kuklō) is first (prōtē) and the forward (epi to prosō) is second; for the latter is in the fixed stars 'but each of them is stationary (hestōs) and not moved (akinēton) with respect to the 5 movements' (Plato Tim. 40B)" (84).

"For every natural body (sōma phusikon) is moved by itself and not by accident (kath' hautō kai ou kata sumbebēkos), inasmuch as nature is a principle of movement and change (metabolēs this is the Aristotelian definition of movement as change). But the stellar body (astrōon sōma) is not moved according to all the other (change) movements (kinēseis) being perpetual (aidion) through all time, thus it is only possible (monēn dunaton) to accept (epidechesthai) the local movement (tēn kata topon), and in particular the circular one (kuklikēn)" (85). "The movement towards the front (eis to prosō) is added (prostetheisa) to the stars as a visible evidence that this movement is the principle (archē) of rectilinear motion (euthuporias), whereas the complexity of the planets guides all the indefiniteness (aoristian) of generation, inasmuch as it (the planetary complexity) moves it (the indef. of generation) from a proximate position (prosechōs) with its many counter-revolutions (anelixesi: including the retrogradations)" (86). "And precisely because the planets are the natural (kata phusin) intermediaries between the fixed stars and the sublunaries they are moved in longitude (mēkos), latitude (platos) and depth (bathos) both in an irregular and a regular fashion (anōmalos kai homalōs), in order (hina) that they may possess (echōsi) the paradigms of those posterior to them (cf. earlier, the mathematical containing the paradigm of the physical entities) (meth' heautous) which move in all (six) directions (pantoiōs), and in order that they may imitate (mimōntai) with their circular movement the uniform (monooides) motion of those prior to them (pro hautōn; viz the fixed stars)" (87).

NOTES ON II.B.1

- 1 The impersonal "theion" seems to have had an earlier history than the personal "theos". For example, there is Xenophanes' criticism of the anthropomorphic characters of Greek mythology, who rejected however motion for the divines. For this and other ref. see, eg., G.E.R.Lloyd "Polarity and Analogy" (1966) p.41-2, 47, earth-sky antithesis, gods p.187-8, 91-6, 219, heavenly bodies p.309-15, 317-19, 259-60, 267. "Arche", and presence of motion associated with divinity, eg. Aristotle De Anima I 405a, 411, Phys.III 203. Anaxagoras attributed divinity to the purposeful mover "nous" (frg.14); however, he denied divinity to the heavenly objects, on account of which he was allegedly, Diogenes Laertius "Lives" Loeb II,12, put on trial on the charge of impiety. He thought the celestial bodies simply as bodies, like stones; this seems to be linked to the first formulation of the eclipse of the Sun by the Moon, as an opaque body, see T.Heath "Aristarchus of Samos" (1913) ch.X. Belief in the divinity of the stars and the planets in particular seems to have been contemporary to Plato; see Tim.38D Mercury called the "divine star of Hermes", and Philip of Opus' Platonic Epinomis 984-987; also cf. Arist. Meta. 1047b. It is almost certainly due to influences from the astral religion of the Syrio-Babylonians. "Theologia" seems to have been used first by Plato, eg. Rep.379A for the various poetical or mythical descriptions of cosmogony, cf. Arist. Meta. 1000a, 1071b. Aristotle, Meta. 1026a 18 ff., developed it to mean the "First" philosophy dealing with unchanging, permanent entities. Both Plato, Laws 820a ff., 885, 967-8, and Aristotle, eg. De philosoph. frg.10, each for his own reasons, link belief in God with the contemplation of the heavens, also see Arist. Phys.196a, Ethic.Nicom.1141a. "Ouranos" is used in many occasions interchangeably as cosmos-order, eg. Plato Tim.28B, Phaedrus 247, Politicus 269D, Aristotle De Caelo I 278. "Entautha", eg., Arist. Meta. 990b; "ekei", eg., Plato Phaedo 61E, 64A for the otherworld, and for the intellig. more extensiv. Plotinus Enn.II 9,4; II 4,5; I 2,7. In Proclus, see In Tim.III 80, 111, 112, 128-131. Proclus regarded the celestial body as the "agalma", meaning statue-image of the(celestial)god; cf. Plato Tim.37C6, and Laws X 898D-899D, where Plato distinguishes carefully the divine celestial souls from the celestial bodies themselves. See also, G.Vlastos "Theology and Philosophy in early Greek thought", Philosophical Quarterly 2 (1952) p.97-123.

- 2 Philosophical causes of change, differentiated from the more physical "astrological" effects of mainly the Sun and the Moon on the seasons, weathers and climates, for example, which were held to be largely uncontroversial, see *De Generat. et Corrupt.* II 10, 336b, and cf. Ptolemy *Tetrabiblos* I ch.1 & 2. Also see, R.W.Sharpley "Alexander of Aphrodisias on divine providence: two problems" *Classical Quarterly* 32i (1982) p.198-211, esp. p.200-7.

2. THE CELESTIAL

The choice of the term "celestial", as opposed to "celestial body", may be unusual but as a noun it conveys a more accurate impression of Proclus' conception of the celestial objects (ouranioi).

In Platonism, the world was conceived to have been "modelled" on the "paradigm" of the "living-being" (zōon). Just as a living-being can move its body by itself (autokinēton) — unlike the inanimate stones¹ which can only be moved by external action (heterokinēton) — so the world is moved by itself, since to assume moving principles external to it would undermine its uniqueness and perfection and would ultimately lead to infinite regress.

This self-moving principle was attributed to the soul of the living-being.² Although the intellection (noēsis) of the living-being may initiate the movement, it is the soul which executes it. The body is the "visible and tangible" part of the living-being; is inert in itself and only able to be acted-upon.³ In these terms, the soul of the living-being "moves" but the body "is moved". This is very briefly the background to Proclus' composite celestial.

Each celestial by virtue of its very existence, in Proclus' philosophy (see Part I.B.1.3; 2 and B(intro)), is a henad — viz a unity — and a real-existent being. Since it has its own principle of motion, soul, it also has an intellect to initiate and give "form" to its movement. Finally as an object which exists in the world of sensible perception, it also has a body, the celestial body, which is visible (and in principle, tangible).⁴ Yet the above do not describe a celestial fully, or satisfactorily, because they cannot distinguish it, say, from a human living-being.⁵ A celestial, unlike a human being, is a self-constituted, eternal entity. These qualities refer to a particular kind of

henad, namely the self-subsistent (authupostatos) or independent henad (see part I.B.1.3 cf. I.A.1), which according to Proclus may bear the appellation "divine".

Thus the celestial is an independent, so-called divine, entity with its own ability to move its body. "The henad is immediately deity (henas autothen theos), the intellect most divine (theiotaton), the soul divine (theia), the body deiform (theoeides)... The primary participant of the supra-existential (huperousiōn) henads will be the undivided mode of existence (ameristos ousia: from the context it implies both existence and intellect: Proclus here bunches together the hypostases), next that one which touches generation (geneseōs ephaptomenē: prob. soul) and third generation (hē genesis: ie. body); and each will participate through the one immediately supradjacent (prosechōs huperkeimenon) to it. The divine character (idiotēs) penetrates (phoita) even to the last terms of the participant series (tois metechousin), but always through intermediaries (dia mesōn) akin (sungenōn) to itself. Thus the henad bestows (didōsi) first on an intellect that power (dunamin) among the divine attributes which is peculiarly (exaireton) its own... If this intellect is participable (ei... methektos), through it (dia de nou) the henad is also present in a soul (psuchē paresti)... Through this soul again, if it is participated by a body, the henad communicates even to the body a faint echo (apēchēma didōsi) of its own quality; in this way the body becomes not only animate (empsuchon) and intellective (noeron) but also divine (theion), in the sense that it has received from a soul life and movement (kinēsīn), from an intellect indissoluble permanence (aluton diamonēn: effectively a permanence of form) and from the henad in which it participates a divine union (henōsin), each successive term (hekaston) communicating (metadidōsi) to the consequent one (tois ephexēs) something of its own mode of existence (huparxeōs) " (88).⁶

For convenience, each celestial can be regarded as having essentially two parts (although it should be noted that this is

not an explicit Proclan demarkation)⁷ an incorporeal and a corporeal. The incorporeal includes the independent henad, the intellect and the soul of the celestial. Since all these are ultimately responsible for the movement of the celestial, then the incorporeal may be rightly called the "celestial mover".⁸ The corporeal part is of course the celestial body per se, the aspect of the celestial which is perceptible by our sight, whose visible circulations constitute the celestial "phenomena".

If the corporeal and visible part represents the physical nature of the celestial, then the incorporeal represents the metaphysical. Appropriately, the latter relates to the more metaphysical entities and processes in Proclus' system (these in themselves are not subjects of this study). For example, a number of them may be grouped under the heading of the relationship between humans and their "betters" (kreittosin), including the divines: fate and providence, the exercise of intellection and contemplation, ethics, the types of life (bios) man can lead, etc. Such considerations are also linked to the issue of celestial "influence" and the attendant "daimon-spirits", and together they provide the philosophical backbone of his religion.

Yet the metaphysical is not altogether separated from the physical. They are linked via the soul. Moreover, inasmuch as the metaphysical part is the "inner" energizing element which determines the "external" behaviour of the body, then it is this which dominates the manner the celestial object appears to behave in the heavens. As Proclus emphasizes "as the visible (phainomenos) Socrates (ie. his body) is one thing, but the true (alēthinos) Socrates is another", so, the "true" element of a celestial like the Sun or Jupiter is to be found in the incorporeal and invisible part rather than in the corporeal.⁹

The constituents of the celestial "mover" in little more detail are as follows:

(1) The divine henad is the celestial's own source of motivity. The henad or unity in Proclus' Neoplatonic jargon has both a logical and a cosmological value. In dialectical terms it is purely the necessary ultimate limit to the number of "first" principles or predicates an entity can have, without which there would be infinite regress. From this follow a number of concomitant cosmological properties: the "unity" is the ultimate and true essence of an entity; as a unity, ie. not divided up, it is the concentrated source of the power of an entity, in a manner analogous to the First Cause; etc.

That the celestial's unity is a "divine" one is basically a further qualitative emphasis of its "unique" quality. For Proclus, "divine" is merely the conventional, traditional expression for causes or causative entities which philosophically can be said to be self-constituted or self-subsistent (*authupostatos*) and complete in themselves (*autoteleēs*). "And so not every unity is divine (*theos*), but only the self-complete henad (*autoteleēs henas*)" (89). It must not be forgotten though, that even such self-complete entities were not supposed to operate in a vacuum, that is, cut-off from each other. For Proclus, the celestials were thought to be the last link of the chain of entities with divine henads, which originates in and by the One Cause of all, the First Divinity.

By virtue of its divine henad a celestial has always both the necessary "will" (*boulēsis*) and the power (*dunamis*) to act. Such action can take the form of providence (*pronoia*) over lesser entities¹⁰ (cf. chapter 5), and the passing-on of the general process of "progression-return". Action with respect to itself would simply be the celestial's own cycle of "procession" from and "reversion" to itself, since this is the property (and one of the definitions) of self-constituted entities.¹¹ The necessary power for all this activity comes from the divine henad's own "super-

abundant power" (periousia dunameōs) which is "originative" or "sovereign" (archikē) and has "control" (kratikē) over the actions. Furthermore, according to Proclus, "will" or volition seems to be an aspect of "power", perhaps literally will-power, for, as he says, the relation will (boulēsis) to providence is as the relation power (dunamis) to activity (energeia).¹³

Concepts and relationships such as these are behind Proclus' almost cursory remark about the "motive deity" (kinētikēs theotētos) which is in each star.¹⁴

(ii) The theory of the intellect (nous) and its operation (noēsis) is at least as complex in Proclus as in the earlier ancient philosophers. Suffice to mention here that following Plato (Tim 40B etc) the intellect of a celestial is supposed "to think (phronein) the same thoughts about the same objects of thought (ta auta peri tōn autōn) and always in the same manner (aei hosautōs)" (90).

This is the "formal" origin of the celestials' circular motion both around the centre of the universe as a group and around their own, as individuals (Proclus, unlike Plato, extended axial self-rotation to the planets as well)¹⁵ although for him the "true" cause of circularity would have been the celestial's self-reverting process due to its divine henad, upon which, as it were, is added the layer of the intellect's own self-contemplation. He also identified the Chaldean term "zone", meaning celestial sphere, with the intellections (noēseis) of the celestials themselves.¹⁶

(iii) The principle of motion, as mentioned earlier, was thought to be the soul. Soul is situated at the boundary between the intelligible levels of existence and the spatio-temporal one, the corporeal. Soul, therefore, is both the most proximate metaphysical entity to body and the principle of spatio-temporal movement (as opposed to the "unmoved" movement of the intellect, for example).

The relationship between the soul and the intellect and divine henad is that of participation (see earlier Part I.B.(intro) and Part I.A.1). Soul participates in or partakes of (metechei) the properties of the intellect and the divine henad. Accordingly, it can be called a "divine" soul by virtue of its participation in a divine henad, and is said to have a threefold activity (energeia): "...their threefold activity as souls, as recipients (hupodexamenai) of a divine intellect and as dependents (exērtēmenai) on a divinity; as divinities they exercise providence ...(there is a chiasmus here), by virtue of their intellectual life they know all things, and by virtue of their self-movement (kata tēn autokinēton huparxin) proper to their mode of existence they move (kinousi) the bodies... Their third activity is that proper to their own characteristic mode of existence (idian huparxin energeia) whose function is to move (kinētikē) ... for this the distinctive operation (idion energēma) of every soul whereas the other activities such as intellection (noein) and providence (pronoein) are by participation (methexis)" (91).

As with the divine henad, and of course the intellect, the celestial divine soul does not operate in a vacuum. Apart from the vertical relationship divine henad-intellect-soul, it is also a member of the horizontal (see Part I.A.1) hierarchical series of souls as a member of the family of souls per se. The soul which is especially dominant over the celestials, as it is over the world, is the famous World-Soul of the Timaeus (see Part I.B.5.2). Therefore, in Proclus, the celestial soul acts not only with its own self-determination, due to its own individual intellect and divine henad, but also according to the instructions received, as it were, from the World-Soul through its differentiated aspects of the "Same" (for the fixed stars) and the seventhfold "Other" (for the planets) circulation.

It is through the soul (and onto the body) that properties or actions of the intellect and the divine henad, such as volition

(boulēsis), may take spatio-temporal expression (cf. Chapter 6.3 on planetary movement). Besides, it is characteristic of the general Proclan theory of motion, that something which originates purely as an internal dynamic process within point-dimension, so to speak, can unfold, through the graded superposition and accumulation of increasingly less unified, less abstract modes of existence with their own specific functions, into three-dimensional and temporal, physical motion.

NOTES ON II.B.2

- 1 The celestials are not mere stones or earth, contra Anaxagoras, Plato Apology 26 f., Laws X 886D.
- 2 Self-motion as a Platonic category, Laws X 894C, 866-897, Tim.43; soul essentially "self-motion" Phaedo 78B-79B, Phaedrus 245-6; and cf. Form of motion, Sophist 254.
Also see, G.S.Claghorn "Aristotle's criticism of Plato's Timaeus" (1954) p.60-70, 99-120.
For the more systematic arrangement of "self-motion", "moved-by another" etc., in Proclus see, eg., El.Th.14, 20 with Dodds' notes on p.201, and cf. I.B (intro).
In relation to the celestials, however, it should be noted that an innate soul resident in each celestial may not have been necessarily Plato's own conception of celestial mover (see note 2 on II.B.6.1).
- 3 Tim.31B; see, Taylor op.cit. p.88-90, 93-4; and cf. Laws 896. Incorporeal being something "active" poiein, whereas corporeal being "passive" paschein, has also parallels in Stoicism. In Proclus, also see, El.Th.80 and Dodds' notes p.243, where the incorporeal does not remain entirely unaffected by the corporeal - perhaps related to the "shaking" of Philebus 33D?
- 4 See Proclus In Tim.II 6 and Philoponus De Aetern. Mundi p.520-1; as it has been pointed out to me by R.W.Sharples, these refs. are important for the issue whether Theophrastus (3rd.c.BC Peripatetic) abandoned the Aristotelian Aether or not. For Proclus the case is certainly more clear, the heavens are composed of all the four Elements, including the "tangible" Earth.
- 5 Celestials acting like animals, having both life and initiative can also be found in Aristotle, de Caelo II 12, esp. 292a 20 - 292b 10.
- 6 See also Pl.Th.I 67-8, and particularly, In Tim.III 126,14-23, all of which confirm that participation has the role of predication; cf. I.A.1.
- 7 Cf. In Tim.III 59,18 ff, and El.Th.14-16.
- 8 This would coincide with Plato's moving cause, insofar as there is a transcendental "form" of motion (corresp. to intellect in Proclus), eg. Sophist. 254, Laws 894B-C, and the "self-motion" of soul, the archē, principle of motion.
- 9 For the whole quotation, incl. the ref. to Socrates and the planet Jupiter, In Tim.III 72,16-21; also III 151,20-27 for visible - invisible but ref. to the occult quality of the henad.

- 10 See, eg., El.Th.120-22; the issue has featured in a number of studies, however, nothing more need be added, here.
- 11 Cf. El.Th.42-44, 82.
- 12 See, eg., El.Th.121, and note 11 on II.B.4.
- 13 See esp. In Tim.I 371,15-372.
- 14 In Tim.III 57,17-20.
- 15 See II.B.6.1
- 16 In Tim.III 133,6 f.

3. THE CELESTIAL BODY

"For the nature of the celestial bodies (ouraniōn sōmaton phusis) is immaterial and unchangeable¹(aulos kai ametablētos)" (92).

But Proclus rejected the 5th Element, Aether, which was meant to fulfill precisely the above conditions of immutability (and impassivity). He made use instead of the Neoplatonic theme that everything is in everything but appropriately in each. So, the substance of the heavens does not consist of a fifth and different Element, but of all the 4 Elements in an appropriate, celestial mode. Although his objection against a fifth Element for the heavens may have been due to his own preference for the Platonic doctrine of fiery stars, he also had other philosophical, scientific arguments against it. His objections are thematically linked to the longstanding criticism of Aristotle's Aether, which according to Simplicius' evidence was centred on the problems of the Elements' natural motion in relation to proper place. It had begun with the 1stC BC Peripatetic Xenarchus and included among others Ptolemy.

Proclus attacks the ad hoc nature of the 5th Element for not relating to anything else in the world. "Since to simply say (legein haptōs), that heaven is a fifth body, does not make clear anything about it (ouden diasaphein) except that it is different from these sublunary Elements (plēn hoti tōnde tōn stoicheiōn heteron)" (93). For him the undecaying character of the heavens can also be accounted by a kind of Fire which is capable of moving naturally in a circular fashion. As he iterates, Aristotle himself may be conceived to have admitted this much in the *Meteorologica* with the "hupekkauma", the burning material, which was said to circulate at the top of the atmosphere just below the first celestial orbit of the Moon.² But Proclus also carefully avoided the possible extreme Platonic position that the celestial bodies are made exclusively of Fire.³

Since all the 4 Elements exist on all levels of the universe, then

it is fitting that all 4 of them should exist in the heavens. As on earth they exist in a terrestrial and material mode, with Earth predominating, then in the heavens they exist in a celestial and immaterial mode, with Fire predominating⁴(also see II.A.4.1).

"They who say that the nature of the heavens (ouranou phusis) is different from those entities subject-to-change (metablētōn) which are really enmattered realities (ontōs enulōn pragmatōn), speak correctly (orthōs), but they overlook (amelountes) our and the Platonic words (hēmōn kai tōn Platonikōn rhēmaton) on this matter, ...that the Demiurge 'bound and constituted together the heavens' with the proportion of the 4 Elements (Tim 32 B) and elsewhere (Tim 40 A) that they are 'fabricated from the form of Fire' ... for by necessity:

(Query a) the celestial element is either totally different (allo pantē) from the 4 Elements, ie is a 5th Element (pempton stoicheion), as some say; (Q. b) or, that the heaven consists of the 4 Elements also; (Q. c) or, from one Element out of the 4 (hex henos tinos tōn tettarōn); (Q. d) or, from more than one out of the 4 (ek pleionōn henos). If it (the heaven) consists of the 4 then (Reply to query b., option 1) it consists in form (kat' eidos) of the same sublunary elements, (R. b 2) or of different ones (ē allōn). (R. a) But if that celestial Element is different from the 4 how is it, as Plato says (Tim 32 BC) that the whole world consists (einai) of the 4 Elements? (R. c) Whereas if it consists of one Element out of the 4, how is it as he says shortly afterwards (Tim 40 A), that the stars consist for the most part from Fire (ek pleiston puros)? (R. d) And if from more than one Element (NB. implying, not from all four), how could the divine body be not imperfect (ouk ateles) if it does not have all the Elements, when earth possesses (echousēs) wholly (holōu) all (panta) the sublunary ones? (Returning to b.1) And if the heaven consists from all of them, how is it that their combination over-there (ekei...sunthesis) is indissoluble (alutos), whereas down-here it is dissoluble (lutē)? For they are not indissoluble because they are in equilibrium (isokrateian: meaning, there is

no 'predominance'); for how can the variety (he poikilia) in the heaven be derived (pothen) from equivalence (isokrateias)...

(R. b 2) But if it is composed from different elements how is it that the heaven is moved (kineitai) with a simple motion if its elements are compounds (suntheta: cf. Arist. de Caelo 306 b20) ?...

Such therefore being the queries (aporōn), it is better (beltion) to state that: the heaven consists of Fire which is predominant (ek puros epikratountos) and comprehends (periechei) in a causal mode (kat' aitian) the powers (dunameis) of the other Elements, such as the solidity and stability of Earth (stereotēta...edraiotēta tēs gēs), the glutinous and unifying property of Water (to kolletikon kai henōtikon tou hudatos) and the tenuity and transparency of Air (tēn leptotēta kai tēn diaphaneian tou aeros); for as the earth embraces everything in a terrestrial fashion (chthoniōs) thus the heaven embraces (periechei) everything in a fiery (puriōs); so that one Element is the predominating (to epikratoun) and the others are included in it in a causal mode (en autō kat' aitian). It is necessary therefore to acknowledge (dei nomizein) that the fire over-there is not identically the same (oude ekeino...tauton) with the sublunar, but that (ekeino) is divine fire coexistent (sunuphistamenon: the Q text version)⁵ with life and an imitation (mimēna) of the intellectual fire (noerou puros), whereas the fire down-here (entautha) is really enmattered, generated and corruptible (ontōs enulon k. genēton k. phtharton)" (94).

Of the two requirements on the nature of the celestial bodies, viz. immaterial and unchangeable, the more fundamental - for Proclus - was probably the "immaterial". This is because, as explained more fully elsewhere (see II.A.6 and A.4.1), he regarded materiality both as the root cause of the mutual susceptibility and division when bodies interact with each other, and as one of the factors responsible for disorderly movement. This view of materiality refers to "gross" matter and ought not be confused with that of "substrate" matter which exists everywhere. "The heaven

is immaterial — by this I mean the matter which is unstable (anedraston), possesses a bastard (nothon) beauty and is deformity itself (aischos.ousan)" (95). Thus, an immaterial body is unchangeable since it is impassive (apathes) to anything that seeks to change it.⁶ He could also lay claim to invariability for the celestial bodies in its own right. According to El.Th. proposition 76 "All that arises from an unmoved cause (akinētou aitiās) has an invariable existence (ametablēton...huparxin); all that arises from a mobile cause, a variable". In his scheme the celestial bodies themselves are said to be fashioned by the Demiurge in conjunction with (the monad of) Nature, especially its so-called third demiurgic cause (see Part I.B.6), both of which as unparticipated causes are unmoved.⁷ Therefore the celestial bodies are also invariable as direct products of unmoved causes.

The material — if that is the right term in this case — of the celestial body, the so-called celestial mode, consists of a mixture of all the 4 Elements but with Fire predominating. Appropriately, the celestial fire is the pure and immaterial form of Fire which possesses only the illuminating quality and not the burning, like the sublunary and enmattered fire. In other words, the celestial form of Fire is light.⁸

"The fire which is enmattered is different from the immaterial (allo pur enulon ...allo aulon), immaterial with regards to the sublunary matter, and the corruptible is different from the incorruptible (allo phtharton... allo aphtharton)" (96). "In the heaven (en ouranō) is the really-existent fire (to ontōs pur) which is pure light (phōs on katharon)" (97). "For to be visible (to horaton) is characteristic (idion) of all Fire (pantos puros) but not to be hot, nor to float upwards (ou to thermon oudē to epipolastikon)"(98). "Thus Fire predominates (epikratei) everywhere (pantachou), and all heaven is characterized (charaktērizetai) by its power (dunamin), and the fire which is over-there (ekei) is neither caustic..., nor destructive (phthartikon) of anything,

... but it shines-forth (dialampon) with life-producing heat (thermotēti zōogonō), illuminating power (dunamei phōtistikē) and with purity and translucency; for the violent quality (sphodron) is different from the pure (katharon), as Socrates showed in the Philebus (Phlb. 52C1). So, the fire, which is there, is light" (99). "The fiery element predominates over all, in order that the form (eidos) which is there controls the substratum (diakratei to hupokeimena), maintains (sunechei) and preserves (tērei) it from every side, and is itself full of life (plēres zōēs) and self-moving power (autokinētou dunameōs)" (100).

The celestial fire is indeed incorruptible for "over-there" (ekei) is Fire's own natural place, where it can move perpetually in a circle. "But if Aristotle should query⁹(aporoi) what is asserted by us, if Fire is in the heaven (en ouranō) how does it move circularly (kuklō) and not in a straight line (ouk ep' eutheias), we can reply to him with the Plotinian statement,¹⁰ that every simple body which is (on) in its own-proper place (oikeiō topō) either remains stationary or is moved in a circle, in order that it never leaves (mēde apoleipē) its own-proper place; for if it moves differently (allōs), either it is no longer in its own place (ē ouketi estai en tō autō heautou topō) or is not yet in it (ē oupō estin)" (101). "For it only has the motion according-to-its nature (kata phusin) whenever (hopotan) it occupies (echē topon) its own-proper (oikeion) place, but when it tends (hotan...pherētai) to move towards it, it does not yet (oupō) occupy its natural place (kata phusin). This however having been demonstrated, it is evident that the celestial fire (ouranion pur), since it moves, is moved circularly (kuklō) ...; for if the Fire did not move in a circle then it would not yet (oupō) be in its natural place. And if it is in its natural place it will be either unmoved (akinēton) or moved in a circle. But it is impossible (adunaton) for it to be unmoved; for all Fire is mobile by nature (phusei gar eukineiton pan pur); hence it will only move in a circle" (102). "It is natural to the fire which is not fire in its final mode (me teleōs puri) to be carried upwards (anō), but to the actualized fire

(kat' energeian puri) it is natural to remain up-there (menein en tō anō kata phusin), where remaining (menon) if it should move (ei ekinoito) it will only have the circular motion" (103).

Air, Water and Earth are also in the heavens (see pg. 236) but in a "causal mode" (kat' aitian) which is roughly equivalent to saying that they exist in principle. Another Proclan expression, which means virtually the same, is that "over-there" are the "summits" (akrotētes) of the Elements, which for the celestial bodies carries a significance of both place and value.

He had good reasons for proposing the presence of the other three Elements in conjunction with Fire. Apart from satisfying the philosophical tenet that "everything is in everything, appropriately" he could also provide with one rule a physical explanation for both (i) the visibility and the occultations of the celestial bodies, and (ii) the transparency of the rest of the celestial region.

Fire with the "transparent media" Air and Water, (see II.A.3) but without Earth, constitutes the stuff of the general celestial region, which is evidently transparent to our sight. Fire with the "solid" Earth and perhaps including Air and Water as well (their presence in this case does not make any material difference) constitutes the stuff of the visible celestial bodies. In Proclus' theory, something is perceived by our senses when it offers "resistance" to them; and the Element which is "resisting" par excellence is the "solid" and "steadfast" Earth. Therefore, whereas the vacant space of the so-called celestial spheres is transparent to our sight, the celestial bodies are not. Or in other words, we can see through the celestial spheres because their heavenly fiery substance does not include Earth, but we can not see through the celestial bodies because their fiery substance does include Earth.

"All heaven is composed from all the Elements, but in some place

(hopou) predominates Fire with the summit of Earth, in another Fire with the summit of the Air-like (aerodous) and in another Fire with the summit of Water, and just as the variation (exallagē) of air and of fire itself is numerous, so is for each of them, on account of which some are more visible (horata mallon), such as the parts which have Fire with the solid (meta tou stereou) quality, whereas the others are more invisible (aoratōtera), such as the parts which have Fire with the translucent (diaugous) and the transparent (diaphanous), and through (dia) these it is possible to see the objects above them (dunaton horan ta anōterō) just like looking through air, but the others intercept our vision (epiprosthei pros tēn hēmeteran opsin). ...appropriately (eikotōs) the spheres have the more attenuated and more transparent substance (leptoteran echousi kai diaphanesteran ousian), whereas the stars have the more solid (tā de astra stereōteran)" (104).

The occultations of the celestial bodies also demonstrate that there is an element of opaque Earth in them; a heavenly body which happens to be directly in front of another in the line of sight of an observer prevents it from being seen because it is able to obstruct the visual path. "There exists a celestial Fire...and a celestial Earth (kai gēs) - or how can the Moon produce a shadow (skian) when it is illuminated by the Sun, and the solar light can not penetrate through it completely (ou dieisi dia pasēs autēs) "? (105). "For to intercept (antiphrattein) is the property of Earth - and this is also evident from the stars which obscure the visible appearance of the others (tais opsesin antiph-rattonta), as they produce a shadow of themselves" (106).

This difference in the essentially fiery mixture of the heavens could also have explained how the planets can "wander" unimpeded through the rest of the heavenly medium (although this does not explicitly appear in Proclus). The fiery mixture of the celestial spheres with the "easily moved" or "easily displaceable" Elements of Air and Water would not offer any resistance to solid bodies.

NOTES ON II.B.3

- 1 It should be added, "everlasting" (aidios), but this is derivable from "unchangeable"; cf. Aristotle de Caelo I,3 and II,1
- 2 In Tim.III 112,1, ref. to the "fiery-like" material. However, Aristotle would have hardly described the motion of the hupekkauma as natural. See, II.A.4.2.
- 3 This would not have been the position of any Platonist proper, for in the Timaeus 40A it is clearly stated that the celestial bodies are made "for the most part of Fire" (tēn pleistēn idean ek puros), and earlier, 32D, that the cosmos was fashioned from all the four Elements.
That the celestial bodies are made of Fire (only) corresponds to the Stoic position, see for refs. note 2 and 20 II.A.3, also S.Sambursky "The physical world of the Greeks" (1956) ch.8. Plotinus' discussion "On the heavens" Enn.II 1, esp.6 shows that the Platonic position was preferable because it could account for the solidity of the celestial bodies.
An additional argument against Fire as the sole constituent of the heavens is, according to Proclus, In Tim.II 8 f., that Fire on its own is invisible; visibility comes about "due to" and "together with" Fire, also cf. In Tim.III 112 ff.
Proclus also makes more of the term "idean", in the above Tim. passage, in the formulation of the concept of the "summits" of the Elements, cf. In Tim.III 112,27-113,20.
- 4 This can be found in the Epinomis 981D-E, although uncredited by Proclus.
The theme, that the celestial realm does not consist of an Element which is "different" or "alien" from the four Elements of the sublunary realm, recurs in Proclus: besides the quote 93 above, it can also be found among the frg. of "The Inquiry into the Objections of Aristotle to Plato's Timaeus" - see note 1 II.A.2 - in Philoponus' De Aeternitate Mundi, p.523.
Also see Plotinus Enn.II 1, and in De Aeternitate Mundi p.524 ff. As A.E.Taylor underlines, op.cit.p.88-89, the notion that there are not two radically different kinds of matter, terrestrial & celestial, was widely established before Aristotle.
- 5 See In Tim.II 43,30; Diehl has "sunuphasmenon", meaning "weaved together", perhaps as in Tim.78B; however I prefer the Q text word, because it accords better with the cosmological content of the passage: it also has the meaning, "established together".
- 6 Cf. Simplicius In Physica p.613,15-17 f.; and Plotinus Enn.II 1 7-8. Impassivity is, perhaps, not so much relevant to the heavenly realm itself, since there is no interaction between the bodies, anyway; it ensures, mainly, impassivity from action by sublunaries.

- 7 The Demiurge as a member of the monad of the "akinētos" Intellect (see I.B intro. and B.4) is certainly unmoved. Soul and Nature as unparticipated entities (see I.B.5.1 & B.6) should also be unmoved, notwithstanding Soul's self-moved essence, however, I have not come across any passage dealing directly with the state of mobility of unparticipated causes. Also see De Aeternitate Mundi Arg.4, p.55-6.
- 8 The definition of a pure form of fire for the celestial bodies is often met in the cosmologies which adhered to the four Element theory as opposed to the Aristotelian fifth Element, Aether. Invariably, such form of fire is called non-burning, by contrast to the sublunary form of fire which causes things to pass-away, ie. be destroyed. In Stoicism, the emphasis was on the "divine" and "creative" fire, and the vital heat; in Neoplatonism, emphasis was placed on the purely illuminating aspect of fire; that is not to say that the differences were so clear cut: Proclus in a frg. from the Inquiry into Arist. Objections against the Timaeus, *ibid.*, for example, makes use of both, De Aeternitate Mundi p.523,11-524,8. There, besides calling the celestial fire non-burning, he also calls it vivific, after Arist. De Generat. Animal., and illuminating. See the refs. on Stoicism in note 3 above, and cf. F.Solmsen "The vital heat, the inborn pneuma and the aether" J.H.S.77 (1957) p.119-23. Also see II.A.4.3, and II.B.7 the note on the solar light.
- 9 Arist. de Caelo 268b-269a, and cf. Meteorologica 341b 13 f. with the ref. to the "fiery-like" material, above. Also see Festugière's note 3 p.34 vol.III of *Comm. sur le Timee*, *op.cit.*
- 10 See II.A.5; also cf. De Aeternitate Mundi p.486.

4. STARS AND SPHERES

The figure which haunted ancient Greek Astronomy was the sphere. Although initially the heavenly spheres had a cosmographical role, they soon became the means for describing both the order and the motion of the celestial bodies. The question whether they were real objects or mathematical devices was the main area of contention between the astronomers and the cosmologically inclined philosophers (who were supposed to look for the true entities in the cosmos).¹

Eudoxus' theory of counteracting spheres, as it was developed by Aristotle, was perhaps the most successful system to combine both the mathematical representation of the "appearances", as were known at that time, and the cosmology of which it was part. Later increasingly more systematic observations necessitated alternative mathematical models for the description of the apparently more complex heavenly phenomena. These were the eccentrics, the epicycles and the Ptolemaic equants. They were indeed more successful in describing the phenomena — the astronomical predictive power of Ptolemy's system was not bettered until Kepler — but their very sophistication and ad hoc use widened the gap between cosmological reality and mathematical invention. For example, Ptolemy's own need to satisfy in some way the very question of the reality of his mathematical model produced a different system. In a separate work, on "the Planetary Hypotheses", it seems, he abandoned the equants at least, and settled for a cosmological system which consisted of spheres driven by self-moved planets.²

So, whereas the mathematical models of the universe became more complex (the eccentric and/or epicyclic motion was able to yield a variety of circle-like shapes, including the ellipse),³ the cosmological ones remained essentially the same: a geocentric system of spheres, the outermost being that of the fixed stars, then the 7 planetary spheres and finally the sphere or spheres of the 4 sublunary Elements.

Proclus frequently confessed to being pre-occupied with the reality of entities, so it is not surprising that his writings are mainly concerned with the cosmological rather than with the purely mathematical models of the heavens - yet, although he was not an astronomer but a philosopher, he is nevertheless unique in having written a complete book on the Ptolemaic system and on the astrolabe.⁴

His options were basically two (corresponding roughly to a Platonic-Aristotelian dichotomy):

(i) The "spheres" represent parts or regions of the heavens bounded by the concave surface of a greater and the convex surface of a lesser sphere. The celestial bodies move freely within these areas in longitude, latitude and "in depth", viz. closer to or further away from earth. Cosmologically, the movement in such "spheres" is a simple circulation, the "wandering" of the planets is usually accounted for by assigning to them the ability to move "actively" by themselves.

(ii) The spheres are physical bodies. The celestial bodies are, in this sense, "passively" moved by being fixed to one spot of the sphere which carries them. There is a whole system of supplementary spheres which carry the celestial bodies around their observed orbits in accordance with the "phenomena".

Proclus opted for the first, not least because it had a Platonic pedigree, and because it suited his scheme of self-determined and self-moving entities. Equally, he may also have been aware that Ptolemy had favoured self-moving planets, although there is no reference to that effect in his astronomically related works. In his Platonic-based arrangement, the "spheres" are so placed that each nests neatly next to its adjacent without overlappings and in accordance with the general requirement that there should be no void between them. Thus, although there are many heavenly "spheres", the heaven as a whole is continuous⁵(on the problem of contiguity and continuity in the Middle Ages see note 6). "The greater spheres engulf the lesser (meizonōn enkolpīsamēnōn tous ellasonas) and encompass

them with their concave surfaces (koilais ...epiphaneiais), and the lesser fit well (enērmōsmenōn) into the greater with their convex (kurtas) surfaces" (107). "(The spheres) are like jars (kadois eoikenai) which are placed within each other, the lesser inside the greater; and such as this is the insertion of the 'whorls' (sphondulōn: A Platonic term, which Proclus interpretes as spheres) which makes the expanse of the heavens (nōton) one continuous surface (hen suneches). For there is no vacuum at all (mēdenos kenou) between the whorls which are fitted into each other so that there is one continuous surface from the convex surface of the innermost (endotatō) of all spheres as far as to the outermost (exōtatō); for the whole of this depth (bathos) is called the celestial expanse (nōton) and not only the surface of the greatest of the whorls" (108).

With regards to the "depth" of the sphere of the fixed stars there were no disputes. It was the thickest sphere of all. Early parallax considerations had led to the maxim that the relation between the earth's size and the distance to the fixed stars is as the relation between the point-centre of a circle and its circumference: "The earth has the relation (logon) of a point-centre to the circle of the fixed stars" (Proclus In Remp II 218, 10-11; cf. Ptolemy Syntaxis I Ch.6).⁷ Furthermore, as Proclus observes, the fixed stars are not spread along a single ring-layer only but are distributed in depth as well. This explains the existence of optical binary stars. "The outermost whorl of the fixed stars, contains such a large number (tosouton plēthos) of stars scattered (katesparmenon) in all its depth...the fixed circle (aplanē kuklon) is vast (platutaton) as it is shown by the distances (megethē) and numbers (plēthē) of the stars which are not one surface, as it is evidenced (hōs estin dēlon) from the apparent double stars" (109).

But with regard to the depth of each of the planetary spheres, there were many different ways of defining it. Proclus

reports an earlier method based on the size of the corresponding planet,⁸ although he comes to accept reluctantly the more modern Ptolemaic method based on the difference between apogeical and perigeical distances. According to it, the thickness - the z-direction, the depth - of each sphere is defined by the distance of the planet at apogee (furthest from earth) minus the distance at perigee (closest to earth). Although he feels that this method is the thin end of the wedge for ascribing cosmological reality to the "counteracting" spheres and the epicycles, to which he was opposed, he agrees to it because it is the least inconsistent with observation⁹ (and could perhaps be justified by the very real motion of the self-moving planets in depth).

The immaterial-kind of substance of the heavens is, as explained elsewhere (see Ch. 3 on The celestial body), a mixture of the four Elements with Fire in its purely illuminating form predominating. Proclus differentiates the celestial bodies themselves from the rest of the heavenly medium by including the "resisting" and "solid" Earth Element in the mixture of the stars but not in the mixture of the spheres. This accounts for the transparency (and therefore sensory invisibility) of the spheres and the opacity (and visibility) of the stars. "For different Elements abound (pleonazein) in different (allachou) places, and in some the fiery Element is far-shining (einai tēlauges) due to the solidity (stereotēta) as on the stellar bodies (hōs epi tōn astroōn somatōn), but in others it escapes our notice (lanthanein hemas) due to the tenuity (leptotēta) as that of the spheres" (110). "And if you want to inquire, what is the composition and substance of the planets themselves and of their whole spheres (sustasis... kai tōn holōn sphairōn) and whether the same one is for both the stars and the spheres or a different, we will answer...that all heaven is composed from all the Elements, but at one place predominates Fire with the summit of Earth, at another Fire with the summit of the Air-like and at another Fire with the summit of Water...some are more visible (horata mallon) those of the sort

which have Fire with the solid quality, whereas others are more invisible (aoratōtera), those which have Fire with translucent and transparent quality... If we speak correctly, then it is reasonable to suppose that the spheres have the more attenuated and more transparent substance (sphairai leptoteran echousi kai diaphanesteran ousian), whereas the stars have the more solid (ta de astra stereōteran)" (111).

In other words, the spheres are not solid bodies like the stars, but regions of space.¹⁰ Two physical consequences of this lack of solidity are: Firstly, the celestial bodies travel entirely unhindered through-but are also physically unsupported by the medium of-the spheres. Secondly, since the spheres are not solid and since they are continuous with and contiguous to each other, then, there is no such thing as a solid boundary between them either. Any substantial differences between them would perhaps be a marginal variation in tenuity due to some having more of an Air Element content and others more of a Water content.

The celestial spheres are in fact the corporeal (in the basic connotation as 3-dimensional space: see II.A.6) representatives of the World's principle of self-motion, viz. the World-Soul. As relatively immaterial spatial regions they are mere tracks in which the stars move by themselves. However, their "true" nature is to be the pluralized and specialized aspects of the World-Soul, the "Same" and the "Other" circulations" (see Part I.B.5.2), which guide the celestials into a regular and even motion with their "governing power"¹¹ (dunamin kratikēn: see Ch. 2 on the celestial).

NOTES ON II.B.4

- 1 See the discussion in Plato Rep.VII, esp. 529-30.
- 2 On ancient astronomy there are a number of studies, including, besides P.Duhem's "Le système du Monde" (1913,1954) esp. vol.II, T.Heath "Aristarchus of Samos" (1913), J.L.E Dreyer "History of Planetary Systems" (1906/53), and among the more recent works, O.Neugebauer's authoritative three part "A History of Ancient Astronomy" (1975). Ptolemy's Planetary Hypotheses is examined in B.Goldstein "The Arabic version of Ptolemy's Planetary Hypotheses" Transactions of the American Philosophical Society 57 (1967) p.1-55. For the distinction between physical and mathematical astronomy, R.Palmer "An approach to the history of early Astronomy" Studies in History and Philosophy of Science 1 (1970) p.93-133. For the Eudoxan-Aristotelian scheme, also, L.Wright "The astronomy of Eudoxus: Geometry or Physics" Studies in History and Phil. of Science 4 (1973) p.165-172; and on the possible relation to Plato's Timaeus, see, G.E.L.Owen "The place of the Timaeus in Plato's Dialogues"(1953) art.16 in R.E.Allen Studies in Plato's Metaphysics op.cit. esp. p.325-6; cf. J.M.Rist "The order of the later Dialogues of Plato" Phoenix 14 (1960) p.214-60,(the conclusion is that there is not any: besides the chronology, Eudoxus' mathematical model would not have been useful for the dynamical expl. of the Timaeus). For a source see, Simplicius In de Caelo p.491-510. On Ptolemy's 'vitalist' position regarding the dynamics of the motion of the planets, also see, S.Sambursky "The physical world of late antiquity" p.140-45, which leads on to Proclus. The study particularly useful for this chapter as a whole is, E.J.Aiton "Celestial spheres and circles" History of Science 19 (1981) p.75-114 (Proclus and the nested spheres, mentioned p.84-5).
- 3 See O.Pedersen and M.Pihl "Early physics and astronomy" (1974), fig.7.19 on p.96.
- 4 Such a topic deserves, of course, a fuller and separate examination, which I cannot present here. There are many passages which testify to his awareness of the problems about cosmological, or physical reality, and mathematical modelling, as a "useful" tool to understanding. The one most widely-known is his conclusion to the Astron.Hypoth., the account of Ptolemy's mathematical system of the heavens, with Proclus' own doubts on its physical reality: see, S.Sambursky The physical world of late antiq., op.cit., p146-49; S.Sambursky (edit.) "Physical thought from the pre-Socratics to the Quantum physicists: an Anthology" (1974), item 117, p.112-4. Proclus on the construction and use of the astrolabe, Hyp.Astr. ch.6; the treatise on the astrol., which was to become influential in Islam and the Middle Ages, was by Philoponus.

- 5 See Plato Republic X 616 f.
For the "whorls" etc. see, T.Heath Aristarchus op.cit. p.148-9, 153-57; and their similarity with the Parmenidean "bands" p68-9. The nested spheres, per se, stem from Ptolemy, see Aiton op.cit.
- 6 See E.Grant on cosmology, ch.8 in "Science and the Middle Ages" (1978) edit. D.Lindberg, esp. p.272-283, also 291-3, with a useful table on p.292 showing the dimensions of the universe, based on the "nested spheres" doctrine; cf. note 9.
- 7 It stems from Aristarchus of Samos and his estimates for his heliocentric system; it seems to have been intended as an answer to the lack of stellar parallax, indeed, Aristarchus appears to have used the same formula-phrase also for the dimensions of the lunar orbit around the earth, besides that of the earth around the sun (which does in fact produce stellar parallaxes; the first stellar distances estimated by this method were produced by Bessel, Henderson in 1838 and Herschel in the 1850's). See T.Heath Aristarchus op.cit. p.302, 308-10, 353, 412. Archimedes, from whom we have the passage on Aristarchus on the heliocentric system and the distance of the fixed stars, in the "Sand-Reckoner" translated the statement into a very large, but finite, estimate of the distance of the stars; hence it was taken up and continued in Greek mathematics and astronomy. See also, G.E.R.Lloyd "Greek Science after Aristotle" (1973) p.42, 54, 116 and cf. R.W.Sharpley "Responsibility, Chance and Not-Being (Alexander of Aphrodisias mantissa 169-172)" B.I.C.S.22 (1975) esp.p.39 and p.62 note 140.
- 8 In Rep.II 218. Proclus seems to be the only source regarding this method; reported in T.Heath Aristarchus p.156.
- 9 In Rep.II 219,23-222. A.E.Taylor Comm.on the Timaeus op.cit. p.161-2, note 2, praises Proclus for being a good Platonist in not wanting to allow the perigee & apogee measur. generated by the eccentrics and epicycles.
The epicyclic parameters given in In Rep.II 222 coincide with those in Ptolemy's Syntaxis, except that of the Moon: it is taken from Ptolemy's Canobic Inscription; see O.Neugebauer "The exact sciences in antiquity" (1957) p.195, footnote 1, and Hist. of Math. Astr. op.cit. p.903.
- 10 Cf. also In Rep.II 215,17-19.
- 11 In Rep.II 215,24-216,4. Cf. also Plato Tim.36C7-D1, where the Same circle is said to have "kratos", sovereignty or predominance, presumably over the Other; see A.E.Taylor op.cit. p.152 n.1 and p.158 n.1.

5. THE SATELLITES

The planets and the fixed stars are not the only objects in the heavens. According to Proclus, the celestials and especially the planets have satellites, companions normally invisible to us, because they are overshadowed by the brilliance of the celestial body to which they belong.

These conclusions are remarkable because they seem to mean that Proclus had anticipated, long before Galileo's famous observation, the existence of satellite-moons.

But the context is rather different: "There are some other celestial divine living-beings (alla zōa theia ei ourania) which accompany the circulations of the planetary ones, whose leaders (hēgemones) are the 7 planets...; they also 'turn' (trepomena) and 'have such kind of wandering' (cf. Tim 38 E) ...for their order revolves (sumperipolei) and returns-to-its-point-of-departure (sunapokathistatai: technical term for a period) together with their principles (archais)" (112). "Each of the planetary spheres is a whole cosmos which collectively comprehends (perilēptikon) many divine classes invisible to us (hēmin aphanōn), but each visible star is the leading (hēgemonian) principle of all of them" (113).

The satellites to which Proclus is referring are part of the "attendants" or "followers" of the celestials as divine causes, the so-called daimonic orders (see Part I.B.8.2). These are the dependent entities which are the immediate participants in the celestials as independent divine henads.

Their cosmological status rests on:

- (1) The premise that each entity which can be regarded as a "first principle", is the "leader" of its appropriate multitude

of entities/characteristics. For example, using the arithmetical analogy (cf. Part I.B.1.1), 1 would be considered as the leading principle of 2,3,4 etc. The latter could then be called the "attendants" of 1 since they 'rely' on it. According to Proclus, the sphere of the fixed stars as a whole can be regarded as a monad because of the simplicity of its motion. The fixed stars as a crowd of member-entities can then be the multitude appropriate to it. But each of the planets, for analogous reasons, can equally be regarded as a monad in each respective sphere. The appropriate multitude will then be the "choruses" of the satellite entities.¹ "For the stars which are called planets are governors-of-the-world (kosmokratores: a term with astrological pedigree) and are allotted a 'total' power (holikēn dunamin), and as the fixed sphere has a number of starry living-beings (zōon astrōon), so likewise each of the planets is a leader (hegeitai) of its appropriate multitude of entities, viz. of living-beings or other beings of that kind. Hence from this the query may be solved, ie. how the one-single sphere of the fixed stars encompasses (perieilēphen) a multitude of stars, but the many spheres of the planets lead around (periagei) one star each" (114).

(ii) The concept of "circulation" about (in a loose sense, not necessarily in a circle around a single centre) a "leading" cause. Such an "attending" circulation is essentially an intelligible sort of motion, although spatio-temporal manifestations are possible. An example of this (as Proclus saw it) is the close satellite-escorting of the Sun by Venus and Mercury. "Ptolemy... places the Sun in the middle of the seven planets...and those who are after it move together with it (sunontes auto), escort it (propompeuontes) or are its satellites (doruphorountes)²" (115).

So, the satellites and their motion are essentially metaphysical, and relate to the metaphysical aspect of the celestial (cf. Ch. 2 the celestial, and Ch. 7). Yet, insofar as the daimonic orders are not wholly metaphysical entities in Proclus system, but are

"in-the-world", semi-material entities (cf. I.B.8.2), and the satellite-escorting was perceived to have its occasional physical parallel, as in the case of the Sun, Mercury and Venus, the satellite theory does not refer to an entirely metaphysical and incorporeal state of existence. Moreover, at times Proclus seems to allow the obscuring of the difference between the physical and metaphysical, as in the following passage, where the clues that the "disappearances and re-appearances" do not refer to a visible phenomenon are not as clear as the occasion demands:³

"The celestial gods and their accompanying classes (sunepomenōn autois genōn), which are sometimes (ha dē pote men) hidden by the bright rays (kaluptetai hupo tas augas) of the leading gods, when they reappear (pote de anaphainomena) they produce terrors and the signs of future things" (116).

Apart from populating each of the planetary spheres with more entities, the satellite class serves two other important functions:

(i) With the original Greek meaning doruphoros=attendant or bodyguard, they act as representatives of the so-called guardian series (see Part I.B.1.3; also I.B.4 and 5.1) analogous to the "guardians" in Intellect and Soul. These are entities, which primarily are meant to conserve and preserve the order and distinct identity of principal causes. In the case of the celestials the satellites are said to guard their immutability from any disorder that arose from the multi-changing matter. This is probably deemed necessary because of the hierarchical proximity of the celestials (and especially the planets) to the domain of generation and perishing.⁴

(ii) They act as intermediary carriers of the characteristic property (idiotēs) of the chain of divine "causation". Thus the specialization which occurs on every level of the hierarchy can be extended as far as and be distributed to the material world by these intermediaries of the last of the divine henads, the

celestial. As Proclus says "All the powers of the gods, taking their origin (another archomenai) above and proceeding through the appropriate intermediaries (mesoteton), descend even to the last existent (eschaton) and terrestrial regions...and hence it is that even in these appear reflections (emphases) of the first principles, and there is sympathy between all" (117).

The satellite entities are said to be invisible because they are overshadowed by the brilliance of their "leading" star. This invisibility seems to have its parallel in the Elements. In the Element theory (see Part II.A.3. on their properties) the "visible and tangible" Elements are the two extremes, Fire and Earth. The intermediaries Air and Water are said to be transparent and invisible to our sight. Similarly, the satellites are said to be suitably invisible as their order is intermediate between the visible fiery celestial bodies and the tangible terrestrial ones. In other words, the scheme, Fire - Air - Water - Earth seems to be analogous to celestials - satellites - terrestrials.

"But that in each of the planetary spheres there is a multitude of entities coordinate with it, you may establish from the two extremes; for the fixed sphere has its own coordinate multitude and the earth is itself the wholeness of the terrestrial (chthonion zoon) living-beings... But the intermediaries escape the notice of our sense-perception (lanthanei hemon ta mesa ten aisthesin), whereas the extremes are made manifest to us, the celestials through their exceedingly bright substance (hyperlampronousian: i.e. light) and the terrestrials through their kinship (sungeneian) to us" (118).

NOTES ON II.B.5

- 1 In Tim.III 130-1. Much of the satellite theory was first noted by Thomas Taylor, the "Platonist" (1758-1835), and copious notes on it, as well as on the other physical and astronomical theories of Proclus, can be found in his transl. of Proclus' Comm. on the Timaeus, and of Plato's Timaeus: eg., "The Cratylus, Phaedo, Parmenides, Timaeus and Critias of Plato" (1793) p.262-4; "The Commentaries of Proclus on the Timaeus of Plato in five books" (1820) vol.II p.280-1, 299. For the class of celestial "divine" daimons, eg. In Tim.III 109,12 f.
- 2 "Satellite" has also astrological significance, meaning the planets which flank or are near the Sun, for example, cf. Ptolemy Tetrabiblos III 4. The "satellitng" of the Sun by Mercury and Venus was widely known, and Plato described it in the Timaeus 40C-D with the terms, "choreias", "parabolas", "epanakuklōseis"; and see A.E.Taylor op.cit. p.241-3.
- 3 With ref. to satellites and invisible stars see, Thomas Taylor The Timaeus of Plato etc., p.283; The Comm. of Proclus vol.II p.299. Also see, R.Temple "The Sirius Mystery" (1976) appx.I which is devoted entirely to Proclus. For the question of whether Proclus is describing a physical or metaphysical "obscuring" also cf. In Tim.III 149,13-20, 150,12-20.
- 4 The "bodyguard" preserving principal causes also cf. In Tim.I 39-40, III 149,24-8, III 262,14-20; In Rep.I 90-2. There are obvious influences from the Phaedrus Myth, 247-252, the attendants of the celestial gods; it is mentioned by Proclus In Tim.III 149,24-28. In addition, similarities with the Late Roman institution of "Protector of the Emperor" are very evident, see the Biographical and Historical note. The "protectores" were the officer cadets of the Empire, who received their commissioned rank in a ceremony during which they personally "adored the sacred purple".

6. CELESTIAL MOTION

6.1 GENERAL

The premise of Proclus' theory of celestial motion is that the fixed stars and planets move by themselves; their movement is due to agents immanent in rather than distinct from them. A physical consequence of this is that the celestial bodies do not need any "crystalline" spheres, or epicycles, to carry them around, and in this respect the Proclan theory of celestial motion is linked to the Keplerian and the Newtonian.¹

His theory is a development of the Platonic concept of motion, as mentioned earlier (Ch. 2 on the celestial), that the principle of self-motion (autokinēsis) is soul (psuchē: which in Greek originally denoted the ability to move). The body by itself is regarded as an inert entity moved only by the action of agents external to it, much like a dead body which can be tossed about but cannot move by itself. Celestial motion, therefore, consists of the motive action of the soul upon the body, viz. the psychic upon the corporeal and visible part of the celestial.²

Furthermore, each celestial is affected both by its own individual moving soul and by the general moving soul of the universe as a whole. Although both are essentially self-motions, the former pertains to an individual specialized movement within the "control" of the latter. "The celestials must be animated (psuchoutai)... both by the Cosmic Soul (ie. the World-Soul) and by their own individual soul (idias hekasta psuchēs), because if they are like the whole heaven, in which they are, then they are moved in a circle (kuklophorētika). And if this is so, then they are all moved in a circle about their own centres (kuklō panta kineitai peri ta centra ta heautōn). And if this is so, and all perpetual movement has its own individual moving cause (idion...kinoun aition) and there so many moving causes as individually moved (idiōs kinoumena) bodies, as Aristotle says (see Phys VIII, 4),

then it is necessary that the stars have their own individual appointed souls (psuchas...idias ephestōsas) which move them (tas kinousas)" (119). "Hence it is necessary that each of the stars has its own individual presiding divine soul (idian echein epibēbekuian theian psuchēn) and through these souls, which are in them (en autois ousōn), the stars are linked (sunaptesthai) to the Whole Soul (in this case, the World-Soul)" (120).

Another feature of celestial motion was its association with Time.

Soul, in Proclus' system, is essentially eternal (ousian aiōnion echei) but its actions and effects are temporal (energeian kata chronon).³ Not surprisingly, the type of movement which can be perpetual and still be temporal, is the periodic (periodois metreitai),⁴ since it has neither beginning nor end. "For if it is measured by time (hupo chronou metreitai) and has a transitive activity (metabatikōs energei) and movement is its distinctive character (idia kinēsis), and all that moves participates in time, which if it is perpetual, moves in periods and periodically returns in a circle (periodikōs anakukleitai) and is restored to its starting point (apokathistatai), then it is evident that every encosmic soul having movement and exercising a temporal activity (energousa kata chronon), will have a periodic motion and cyclic reinstatements (apokatastaseis)" (121).

The term "apokatastasis", meaning to return to the state or point of origin, was the chief characteristic of celestial motion in Plato's *Timaeus* and it was regarded as the means for defining the measure of time. For example, the Solar and Lunar periods (the "years" and "months") are the most obvious time measures, but the planets are also valid candidates.⁵

Proclus boldly extended this "measure of time" to include not only the orbital but also the axial period of both the planets and the fixed stars.⁶

Time and motion are in this way inextricably linked so that a relation of time-lengths is equivalent to a relation of movements. Probably the only form of "absolute" time is the period of the World-Soul. "Now it is evident that the soul which is first measured by time has the whole of time for measure (sumpanti chronō metreitai). For if time is the measure of all movement, the first mobile (to prōtōs kinoumenon) will participate in the whole of time and be measured by time in its entirety (hupo pantos memetrēmenou); for if the sum total of time (ho sumpas chronos) does not measure its prime participant it cannot as a whole measure any other (lesser entity). And that all other souls (NB. bar the first, the World-Soul) are measured by certain measures less universal (merikōterōis) than the total time is apparent from the above. For if they are less universal than the soul which primarily (prōtōs) participates in time, it follows that they cannot make their periods coextensive (epharmosousi) with time in its entirety" (122).

Apart from the relatively abstract considerations about the length of the "great year", the "apocatastasis" of all the periods in the universe, the measurement of periodic times had also the more immediate astronomical advantage of determining the rapidity of celestial orbital motion (the axial periods, except perhaps the Moon's, were unobservable).⁷

Although periodic movement in time need not necessarily mean circular movement in space, Proclus' attitude to the virtues of the circular shape is that of all Greek philosophers and astronomers. The main reason was its over-all symmetry which made it literally the perfect shape for the smoothly continuous movement of the celestial bodies.⁸ The sphere's qualities of "symmetry", "beauty" and "simplicity", and their relation to "truth", were valued at least as much by the ancient as they are by the modern theoretician. "The discourse about movement follows that on animation (psychōseōs); because each of the stars is

animated and through this is allotted its appropriate movement; for the soul is a principle of motion (archē kinēseōs). And it is also connected with the theory concerning their shape (schēmatos); for each of the stars has its own proper (oikeion) circular shape (schēma kuklikon) and this it receives from the demiurgic/efficient cause, and by necessity it also has an activity (energeian) and circular motion (kuklikēn phoran) which is appropriate to the circular shape" (123).

NOTES ON II.B.6.1

- 1 Eg., cf. Kepler "Mysterium Cosmographicum" ch.20, "Astronomia Nova" ch.45, "Epitome of Copernican Astronomy" IV, 3.
Kepler chose to make the soul-like force resident in the Sun, as the "heart" of the system. Also see II.B.7.
- 2 It should be mentioned that Plato did not explicitly have the star-souls resident in the celestial bodies; some of the options he considered can be found in Laws X 898-9, viz. resident in the celestial body, or outside it and acting upon it either by corporeal contact (the souls possessing their own "body" of fire or air) or by incorporeal power. The same ambivalence, viz. the star-soul resident in or attached to the celestial body, is discerned also in the Epinomis (probably, since the author of the Epinomis was the editor of the Laws), 982-3.
Another interpretation is that the options of an externally acting soul are presented in order to exemplify the validity of an internally resident soul, see G.Vlastos "Plato's Universe" (1975) part 2 esp. p.31-52 (part 2 is a ref. for this and the following chapters on celestial motion). Whatever the precise position of Plato, it is quite clear that for Proclus the star-souls are resident in the celestial bodies.
Aristotle rejected independent motion for the celestial bodies, however, a soul-like kind of action was transferred to the celestial spheres, as opposed to the celestial bodies themselves. Cf. the art. by R.W.Sharpley on the complexity of the issue, "Alexander of Aphrodisias on divine providence" Cl.Q.1982 p.208-11; "The Unmoved Mover and the motion of the heavens in Alexander of Aphrodisias" Apeiron 17i (1983) p.62-66.
Aristotle's rejection of independent motion for the planets, both as "whirling" and "rolling like a wheel" is, of course, linked to the notion of axial rotation; see T.Heath Aristarchus p.233-5.
On the value of self-initiated motion also see, A.E.Taylor op.cit. p.64.
- 3 Eg., El.Th.191.
- 4 Eg., El.Th.198.
- 5 See, eg., In Tim.III 53,16-25, 54,18-21, 55,14-56,1.
and E.R.Dodds notes on El.Th.199-200, op.cit., p.301-3.
Plato in Tim.38C-39E denominated the planets as the instruments of Time, however Proclus included the fixed stars' proper motion viz. the self-rotation as well as of the planets.
Also see Cornford Plato's Cosmology op.cit. p.97-107; A.E.Taylor op.cit, p.190-1.
- 6 As in note 5; also see Festugière Comm. sur le Timée op.cit. vol.IV p.76-7 n.1; AE.Taylor op.cit. p.219 n.2; T.Heath Arist. op.cit. p.174.

- 7 On the difference in orbital speed between the Moon (the celest. body closest to earth) and Saturn (the body furthest), eg., In Tim.III 75,21-76.
On the "Great Year" see the discussion T.Heath Aristarchus op.ct. p.171-4, 315-6; A.E.Taylor op.cit. p.216-9. It is not, in the main, the total period of the precessional movement - although some, such as Hipparchus, may have confused the two - but the sum total of all the periods which define Time, ie. the periods from all the motions of the celestial bodies.
The issue of the Moon's axial rotation is complex: Cornford, op.cit. p.119, uses the Moon's axial rotation, ipso facto, to justify the Platonic self-motion of celestial bodies, moreover, he infers that Proclus employed the Moon as an example for his extension of self-rotation to the planets; this is, however, misleading because no such arg. exists in the Proclus ref. given by Cornford, nor anywhere else, on my reading. Nevertheless, it would be correct to say, that attributing axial, spin rotation to the Moon does indeed follow from Proclus' extension of self-rotation to the planets. But, as A.E.Taylor points out, op.cit. p.225-6, in the Timaeus self-rotation seems to have been reserved solely for the fixed stars, not the planets (incl. the Moon). This would agree with the prevalent Greek notion that the celestial bodies revolve as if they move fixed on cartwheels, Taylor 148, which is essentially Aristotle's position: for him, De Caelo II 8 290a, that the Moon always shows the same face, is proof that it does not rotate axially. However, another interpretation of this phenomenon was, that it was purely an illusion, created by the reflection of the earth's mountains and seas on the Moon's smooth surface; attributed to Alexander of Aphrodisias by Simplicius In de Caelo p.457.
- 8 Cf. O.J.Brendel "Symbolism of the sphere" (1977) Etudes prélimin. aux religions orient. dans l'Empire romain 67.
The sphere, not unexpectedly, features strongly in the modern "super-symmetry" theories about the "grand-unification" of forces.

6.2.1 THE FIXED STARS

If the diurnal motion of the heavens as a whole represents the first step from simplicity to complexity in a hierarchy of movement, then the movement of each fixed star represents the second.

Firstly, the fixed stars move as a group in accordance with the "Same" circulation (periphora) of the World-Soul about the centre of the universe. This is the diurnal revolution whose westerly direction was called "towards the leading" zodiac signs (epi ta proēgoumena).¹ It could also be regarded as a translational movement, since in the *Timaeus* (40 AB) it had been called "forward" (eis to prosthen): This, as Proclus explains, is just a way of describing the movement of a fixed star from one place on its orbit to the next in the "leading" — interpreted as "forward" — direction. It does not imply rectilinear motion, since the overall trajectory of the "forward" motion is circular.²

Secondly, each fixed star moves about its own individual centre performing an axial rotation, as it were, on the same spot.³ Proclus does not specify the sense of this self-rotation but it would be safe to assume that it is also right-handed, "imitating" the heavenly movement of the "Same".

Each fixed star therefore has both a singular group and a singular individual movement. "How can that which is of the same substance (autēs ousias) as the whole heaven not revolve (kuklophorētikon) with its own individual (idian) movement? And how can it otherwise imitate the universe (to pan) than by moving around its own centre (peri to heautou kentron pheromenon)? By necessity, therefore, the stars are moved with a twofold motion: in themselves (kath' hauta) around their own centre, and in conjunction with their own wholeness (meta tēs heauton holotētos: ie. their sphere). What kind therefore are these two movements?"

For different people say different things; some say that they are both corporeal, others say that the one is psychical and the other corporeal. But it is best to make (poiein) both the psychical and the corporeal twofold... The stellar soul is moved in two ways (dichōs), and the body is led around (periagetai) its own centre ... and is carried in the forward direction (eis to prosthen) of the fixed circulation " (124).

"Each of the stars ... has a circular motion which is appropriate to the circular figure; for every natural body (sōma phusikon) is moved by itself and not by accident (kath' hautō kai ou kata sumbebēkos), inasmuch as nature is a principle of movement and change (kinēseos kai metabolēs; this is the Aristotelian definition of movement as change)⁴.. But the stellar body (astroōn sōma) is not moved (akinēton estin) according to all other kinds of change-movement (kinēseis) being perpetual through all time (ton panta chronon aidion), thus it is only possible (monēn dunaton) to admit (epidechesthai) the local movement (tēn kata topon: locomotion), and of this only the circular one" (125). It was aptly significant for Proclus' scheme that each fixed star has a local movement because it marked the first change-movement in the hierarchy of spatio-temporal motion (which also enabled him to blend in the Aristotelian definition of movement).

6.2.2. THE PRECESSION

Proclus rejects the existence of this phenomenon - A.E. Taylor called it one of his occasional whimsicalities ("A Commentary on Plato's Timaeus" p. 209). The issue in fact is not simply the precession of the equinoxes but the apparent backward motion (epi ta hepomena: ie. eastwards) of the fixed stars about the axis of the ecliptic.⁵

The discovery, by Hipparchus 2ndC BC, in its original form related to the change in the longitude of certain stars over a long period, while their ecliptical latitude remained the same. Ptolemy's own observations 265 years later⁶ confirmed the existence of this change in longitudes. He also confirmed that the pole (in modern terms the axis) of the very slow easterly motion is indeed the ecliptical rather than the celestial: apart from the invariability of the ecliptical latitudes, which Hipparchus had already noted, the celestial latitudes changed in a manner consistent with an additional, ecliptical movement. This led him, like Hipparchus, to assign ecliptical rather than celestial coordinates to the stars.

Yet the actual phenomenon in its bare form was not the precession of the equinoxes as such, but that the distances between the fixed stars and the equinoctial points (and the solsticial) alter: ie. the stars change with respect to the points which were (and are) used as references for their astronomical positions. Whether this meant that the equinoxes - the reference points - are the ones which move, or the fixed stars themselves, was a matter of preference.

Hipparchus, the discoverer himself, seems to have preferred the first hypothesis, as the title of the treatise which set out the phenomenon shows, "on the precession of the solsticial and the equinoctial points"(peri tēs metaptōseōs tōn tropikōn kai isēmerinon sēmeion).⁷ -

Ptolemy, on the other hand, seems to have opted for the second hypothesis, for his account ("Syntaxis" VII 2 & 3) refers repeatedly to the backward motion of the fixed stars, or of the fixed sphere, about the ecliptic pole rather than to the equinoxes: he accepts that both the celestial and the ecliptical poles are fixed in the heavens and so are the equinoctial points.⁸

Proclus' view of the phenomenon is likewise the second, viz. that the fixed stars themselves (are supposed to) move backwards with respect to the direction of their diurnal revolution, moreover all his references point to an even stronger physical interpretation of such a motion. This accords with his overall premise that the celestial bodies and their motion are physically real entities.

Virtually all of Proclus' criticism, as it appears in three separate works, the Commentaries "on the Timaeus" and "on the Republic", and the "Outline of Astronomical Hypotheses", employs arguments based on observation rather than on theory. His chief argument against the movement of the fixed stars about the ecliptical pole is that many stars which have always been — and still are — observed and considered to be visible should have become invisible, and vice versa.⁹ His favourite example is the perennial circumpolarity of the Great Bear constellation: it recurs both in the "Comm. on the Timaeus" and in the "Outline".

"The celestial phenomena are sufficient to convince those who have eyes and can see (tous echontas ommata peithein hikana); for it is evident, that if the fixed stars were moving about the poles of the zodiac circle in the direction following the order of signs (eis ta hepomena: ie. eastwards) then the Bear, which since Homer's time has been called always-visible (aeiphanous: ie. circumpolar), must set in these latitudes (dunein en toutois edei) in no small part since it should have moved by now by more than 15° ...Yet (alla mēn) the Bear is still always-visible... Therefore the motion of the fixed stars in the direction following the order of signs, which they keep on babbling about (thruloumenē)

is not true (ouk alēthēs)" (126).

Although Proclus' statement regarding the setting of the Great Bear at Mediterranean latitudes due to the precession may deserve a separate fuller treatment, it suffices to mention here that his argument in itself is correct (although his assumption that it does not happen, is in fact not true). The precession does change the declinations of the stars and over a sufficiently long period some stars long held to be visible will become invisible and vice versa (although the rate of change with respect to declination is v. small, not the 50" p.a., nor even Ptolemy's and Proclus' 1° per 100 years, which is the general precessional rate. It is only, at max., approximately 20" per year).¹⁰

Proclus' other line of attack is to cast doubt on the reliability of the observational evidence in support of the phenomenon. He draws attention to the low number of observations which record the backward motion of the stars and the relatively short interval of time over which they have been made. He contrasts the number of observations listed by Hipparchus and Ptolemy (taken over approx. 400 years) against the reputed countless number made by the Babylonians and the Egyptians over considerably longer periods,¹¹ which do not record such phenomenon. "I would principally refer to the Chaldeans (in this case at least, meaning the Babylonians), whose astronomical observations (tērēseis) span over whole cosmic periods (holōn kosmikōn periodōn) ... Why then are we asked to accept as evidence (ti ... hemeis marturometha) the records (historēmena) of few observations (ex oligōn tērēseōn) and the sightings (theamata) which are not so accurate (meta tosautēs akribeias)" (127).

This is a particularly perspicacious objection for it questions the value of quantitatively slender observational evidence when the quantitatively greater (both in number, and in time-interval) is negative, especially for an alleged phenomenon which demands by its very nature a great quantity of evidence for its

verification (the backward motion is very slow, ie. it has a very long period of "apokatastasis": see Ch. 6.1). What he does not take into consideration in the argument is the quality of the evidence (or even the method by which it was taken), which can outweigh any quantitative deficiency.

Yet there are also some statements which indicate that Proclus rejected the precession because he found objectionable the very suggestion of an additional ecliptical movement for the fixed stars. "The astronomers' theory of the fixed stars (aplaneis asteras), for they are called and indeed are non-wandering (aplaneis...ontas), does not leave them in peace (mēde apragmonas), but according to their observation even they are supposed to become more or less distant from the celestial pole and appear to occupy different places at different times (topon allote allon epechein), as if (hōs an) they are themselves moving just like the planets" (128). "This movement of the fixed stars, which is as we showed earlier, we do not find acceptable (ouk areskon hemin)... and all the philosophers (sophoi: lit. wise-men) agree with this and have the fixed sphere move around the World-pole (ie. the celestial axis) not that of the ecliptic"(129).

The problem with this theoretical argument, viz. the fixed stars should not move like the planets, is that within Proclus' system it is not a good argument for excluding such a motion. One of the main rules of his philosophy is that the hierarchically "higher" entities "anticipate" and "contain the principles" of the characteristics of the "lower". For example, the planets are said to contain the "principles" and the "paradigms" of sublunary motion (the latter being hierarchically lower; see Ch. 1 Status of celestial bodies). That is, the theoretical framework of his own system far from being incompatible with the planetary-like movement of the fixed stars, is actually quite fit to support it: the fixed stars could be said to "anticipate" the motion of the planets.

Another probable reason is, of course, that as a Platonist and especially as a Platonic "Successor" he had to regard the precessional movement as a priori objectionable (it is overtly contrary to the statements about the fixed stars, in the *Timaeus*). This position does indeed accord with his other "whimsicality", the defence of the Platonic order of the planets (see Ch. 7).

On balance though, Proclus appears to attach considerably more value to the astronomical or observational rather to the intrinsic grounds for rejecting the precessional movement. This agrees with the apparently piecemeal acceptance of the phenomenon even three-four centuries after Ptolemy. Simplicius (6th C AD) for example, admitted it cautiously ("alēthesteron isōs an eiē legein") only because his teacher and Proclus' student Ammonius of Hermeias had personally verified it by observation.¹²

NOTES ON II.B.6.2

- 1 Astronomical jargon, meaning the zodiac signs "leading" in the diurnal celestial motion. Proclus In Tim.III 77-78, and eg., Geminus I, 5 (Manitius).
- 2 In Tim.III 120,25-121,30; also see Taylor, op.cit., p.226 comm. on Plato Tim.40B; cf. T.Heath op.cit. p.162 who distinguishes between the phrase "to the right", as in a straight line, from "rightwards", as in a circle.
- 3 See Plato Tim.40B.
J.L.E.Dreyer "History of Planetary Systems" op.cit. comments on p.71, that it is a curious fact that Plato by purely philosophical reasoning was brought to the conclusion that the heavenly bodies rotate around their own axis. The same would apply to Proclus, esp. in view of his self-rotation for the planets, as well, and, perhaps, his satellite theory.
- 4 Eg., Aristotle Physica II 1, 192b, etc.
- 5 It refers to "precession" as a full "apokatastatic" backward movement, as opposed to a short-term oscillation of the equinoxes, the "trepidation", which was not disputed by Proclus. The whole problem is examined in detail by O.Neugebauer History of Math.Astronomy op.cit. p.296-8, 598, 631-34, where Proclus is mentioned. The issue of how and whether the two were seen as separate or the same is further complicated by the possibility that Hipparchus was the inventor of both. Also see, P.Duhem op.cit. vol.II p.181 ff.
For Proclus, cf. Hyp.Astr. the "hypotheses" no. eight and nine; he views Ptolemy's promulgation of the "variation" of the positions of the fixed stars as an artificial hypothesis employed for the solution of the anomalies of planetary motion, ie. as a way for 'adjusting' positional coordinates (in the "Syntaxis" the account of the precession, Bk.7, is placed just before that of the planetary motion, Bk.9 etc, Bk.8 is mainly on coordinate geometry and data) .see Proclus Hypoth.Astr. p.136-140, his preamble to the theory on the planets.
- 6 The figure given in Ptolemy "Syntaxis" VII,2.
- 7 "Metaptōsis" means lit."variation"; more strongly "falling back", with respect to the "leading" direction.
Also cf. Hipparchus In Arati et Eudoxi phaenomena comment. libri tres (ed. Manitius, Teubner 1894) p.30.
- 8 Also cf. Syntaxis VII 3 and 4.
- 9 In Tim.III 125; In Rep.II 235; Hypoth.Astr. p.234.

- 10 For the possibility that some of the Bear constellation has indeed become invisible due to precession see, T.Heath Aristarchus op.cit p.8-9 n.2.
The technical ref. in the parenthesis from W.M.Smart "Textbook on Spherical Astronomy" 6th ed. (1977) ch.10 on Precession and Nutation, esp. p.229-231, which includes the formulae on the effect of precession on the declination (angular distance from celestial equator) of a star. On the options of interpr. the phenomenon, see n.5 above, ibid p.226-8.
Briefly, the limits of visibility of a star can be estimated from the geographical latitude of the observer and the declination of the star, with allowances for atmospheric refraction.
Specifically, the tail-end of the Great Bear, Eta Ursae Majoris, the southernmost of the seven, has declination of approx. + 50°. Therefore, it will be circumpolar for observers north of latit. 40° N ($90^\circ - 50^\circ = 40^\circ$), such as Byzantium and perhaps Thessalonica, certainly not Athens or other more southern places.
Another piece of evidence for Proclus was that Canopus of the Argo constell. which was seen "grazing" (paraxeonta) the horizon by observers of the "fourth latitude", ie that of Rhodes (36° N), should also have changed. Using present values for Canopus, with declination -52° 40' it would be permanently invisible for observers north of approx. 37° N ($90^\circ - 53^\circ$), and therefore, it may still be, as Proclus said, only just visible for observ. of the "fourth latitude" (In Tim.III 125).
- 11 A similar statement regarding the quantity of observations and lengths of time of the Egyptians and Babylonians is made by Simplicius In de Caelo p.117, in support of the unchangeability of the heavens.
- 12 Simplicius In de Caelo 462,20-25; also see, O.Neugebauer, Hist. of Ancient Math. Astr. op.cit. p.1037.

6.3 THE PLANETS

Proclus' view of the complex movement of the planets is, that it is appropriate to their intermediary status and therefore ranks between the simple movement of the fixed stars, and the entirely complex and disorderly movement of the sublunary inhabitants. "In order that by being intermediaries (mesoi) between the fixed stars and the rectilinearly moving (kat' eutheian kinoumenōn) entities, they have a mixed (miktēn...kinēsīn) movement, viz. are carried in altitude and depth (eis hupsos...kai bathos) and are moving direct (propodizontes) and retrograde (hupopodizontes), but all of them take place in regular periods of time (en chronois tetagmenōs)" (130).

Although the planets, like the fixed stars, are still moved both by the World's and their own individual moving principle, the soul, both of these factors are no longer singular in action. Firstly, the diurnal westerly revolution is not the only celestial movement imparted to them. They are also subject to the "Other" circulation, the much slower easterly (from West to East) annual movement along the ecliptic in the so-called direction following the order of the zodiacal signs (epi ta hepomena).¹ Secondly, even the group-movement of the "Other" circulation is splintered into 7 sub-circulations with different speeds appropriate to each of the 7 planets. Thirdly, according to Proclus, the individual motion of each of the planets is no longer singular, ie. a pure axial rotation, but is also expressed in the numerous "anomalies" of their orbital motion, the orbital excursions, and the retrogradations of the 5 proper planets.²

"It is the characteristic property (to idion) of the fixed stars to move 'towards the same things' (kata ta auta)³ 'on the same spot' (en tō autō)³ with their own individual (idiān) movement, ...but the planets have 'changes-of-direction' (tropas)³ while they travel through the heavens; ...It is evident therefore that the planets become more distant from and nearer to (apogeiōtera

ginesthai kai perigelotera: apogee & perigee) earth by themselves (di' heautōn) and make the changes-in-direction in latitude (kata platos...tropas) by their own travelling (poreuomena) and not by being carried by others (ouch' hup' allon pheromena), such as some say by certain 'counteracting' spheres (anelittousōn tines: ie. the Eudoxan and Aristotelian system) or by the epicycles, since they have, as it were, in the mode of their own singular nature (kata tēn heautōn mian phusin), both a singular and a varied motion (mian kai poikilēn kinēsin) with which they advance and retrace their path in a spiral form (propodizonta kai hupopodizonta helikoeidōs: ref. to the combined diurnal and ecliptic motion) and change-the-form (metaschēmatizonta) of its revolution in all various ways (pantoiōs), hence their motion is triple: the one, with which they are changing-direction and moved (trepetai... kineisthai), moving both about their own centres and in latitude: depth (kata platos...kai kata bathos), the second, with which they are led around (periagetai) towards the left (ep' aristera: ie. to the East) by their own circles - spheres (kuklōn), and the third, with which they are led around by the 'Same' circulation (hupo tēs tautou phoras) which governs (kratousēs) all the circulations of the 'Other' (thaterou: ie. the ecliptic movement)" (131).

So, whereas the fixed stars move along their orbit in one sense only, the planets move in all six, both with their regular (ie. diurnal and ecliptic) and their anomalous movement (ie. the retrogradations, stoppings and advancements (hupopodismous, stērigmous, propodismous)⁴): in longitude, forwards and backwards - or right-handedly and left-handedly depending on point of view - ; in latitude, up and down; in depth, ie. closer or further from earth, and from another point of view up and down (since depth = distance from earth = height).⁵

The variety in speed and direction of planetary motion presented two fundamental problems to Proclus:

- (i) The chief problem inherent in a geocentric system, namely the "loopings" of retrograde movement.

Proclus rejected the counteracting spheres of Eudoxus as well as the eccentrics and the epicycles as artificial inventions, which do not have any bearing on the real nature of planetary motion.⁶ He objected to them not only because of their ad hoc handling (Proclus was well aware of both the Aristotelian and the Ptolemaic mathematical systems) but also because his own system had no place for them and relied instead on self-generated action. "The irregularity is only apparent (phainetai monon) through the contrary motion (phoras) of their revolutions (anelittousōn) and through the retrograde (antiperiphoras), which are explained either by the epicycles (epikuklous) and eccentrics (ekkentrous) or by other causes (aitias); but not all hypotheses have the same probability (to eikos), and of those which have been invented (eskeuōrēmenai) by the later scientists (neōterōn), some are far from the simplicity (tēs haplotētos aphistantai) of divine things, and others suppose that the motion of the celestials is as it were (hōsper) sustained by a machine (hupo mēchanēs: ie. the celestial motion is mechanical; also a pun on 'deus ex machina')" (132).

His solution seems to have been that the same principle which is responsible for the movement of the planets must also be responsible for their observed irregularities. Like others before him, including Aristotle in his earlier Platonic period, he accounted for these variations by employing the "volition" (boulēsis, see II.B.2 and I.B.1.3) of the planets; as self-determined entities.⁷

"These stars move in different ways without needing these kind of contrivances (toioutōn mechanēmatōn: viz. the epicycles, etc)

... hence this variety of movement must depend on the motion of the souls (exaptein tēs kinēseōs tōn psuchōn) according to whose volition (boulēsīn) the bodies are moved faster (thatton) or slower (braduteron),, but not through lack of power (astheneian) ... for the very same irregularity is effected (gignomenēn) in ordered intervals of time (en tetagmenois chronois)" (133).

"For the planets are not moving irregularly through lack of control as the inanimate things (kathaper ta apsucha), but through the volition of their presiding souls. And the various intellections (noēseis), which he called 'zones' (NB.ref. to the 'Chaldean' terminology of spheres), are turning with their own order and lead the apparent 'indiscipline' (phainomenēn tōn sōmatōn ataxian) of the bodies into their proper order, by preserving (diasōsamenas) each of the planets with their own power (tais heautōn dunamesi)"(134).

This is consistent with his theory of self-constituted entities (see Ch. 2 the celestial) as well as his theory of celestial motion. It is also indicative of the consistency between the ontological and cosmological elements of his philosophy.

There is an objection which can be aimed at all the dynamical, physical explanations (as opposed to kinematical, mathematical accounts) of celestial motion, which rely on the action of a property immanent in the celestial body. They carry the concept of self-action to its logical extreme and fall into the trap of spontaneity which may be said to render scientific explanation impossible. As G. Vlastos ("Plato's Universe" p.59) points out: "The explanatory value of such ancillary hypothesis (ie. the volitional action) would have been bogus. It would purport to explain observed irregularities in the motions of this or that star by postulating that the star simply chose to move in just those ways for just those periods of time. Why it should have made those choices rather than any of the infinitely many alternative ones it could have taken at those same points in its trajectory would remain a mystery. The proposed explanans (ie. the explanation), itself no less obscure than the explanandum

(ie. that which is to be explained), would explain nothing". This criticism is even more poignant for Proclus', than, for example, Ptolemy's physical explanation of planetary movement, because the former relies exclusively on free motion in space, whereas the latter seems to have included "crystalline" ring-spheres as well (albeit driven by the self-moved planets).

Part of the objection is that spontaneity implies indeterminacy and at best irregularity, randomness, if not chaos - something which was particularly inconvenient for a theory on celestial motion.

But this does not hold true for Proclus' view of the celestials. Inasmuch as the mode of manifested behaviour is dependent on the immanent property, power, which initiates it, and since the celestial 'mover' (see Ch. 2) is both deliberate & orderly in itself, then spontaneity at least for the celestials means built-in intended order, neither accident nor chance.⁸ Proclus is at pains to emphasize (see the quotes 133 & 134) that the "wandering" is not due to lack-of-power (astheneian), an expression also employed in the description of gross matter and the disorderly movements associated with it. Besides, the planetary anomalies take place in regular, ordered terms, "in measures and bounds" (see quote 78, Ch. 1), which can after all be defined quite successfully by mathematics.

So, the hypothesis of self-moved planets does not lead to indeterminacy, nor to unpredictability; moreover, it renders their orderly behaviour inherent rather than dependent on other physical factors.

But the central argument, that the "explanans" is no less obscure than the "explanandum", still stands, even if it can be accepted that the "mystery" rests with the observers rather than with the objects of observation, the planets themselves, as Ptolemy had concluded in his physical account, the "Planetary Hypotheses"

(XIII,2). "It is not fitting to judge the very simplicity of heavenly objects from those that seem to be simple with us, when not even with us is the same object equally simple to everyone alike ... Rather (we should judge their simplicity) from the unchangeableness of the natures in heaven itself and of their movements. For them all would appear simple, and more so than those things that seem so with us, since it is unthinkable that there is any labour or difficulty in their revolutions".⁹ As long as there is even a trace of irregularity among self-moved stars the above objection holds. It can only really disappear with the last irregularity.

(ii) The planets are subject to contrary actions.

According to Aristotle the heavenly substance is unchangeable, neither generated (genēton) nor destroyed (phtharton) because there is no opposite action or motion to the circular; change, "generation and perishing, takes place among opposites" (en tois enantiois far he genesis kai he phthora).¹⁰

Proclus accepted this thesis, for some of his statements in the "Elements of Physics" — the physics of Aristotle — say much the same, and more importantly, he does not override them elsewhere (eg. in the Comm. on the Timaeus; see II A5). "Nothing is contrary to the circular movement (ouden estin enantion)" (135). "Those which move circularly by nature (kata phusin) are not subject (oute...epidechetai) to either generation or perishing ...for if something is generated and perishes, it comes-to-be from a contrary (ex enantion ginetai) and passes away into a contrary (eis enantion phtheiretai). Except that which moves in a circle does not have a contrary; therefore it is ungenerated and imperishable" (136). He seems to have appreciated that since his theory of celestial motion is pivoted on self-motion then the changes of direction of the planets imply that their self-moving principle is subject to contra-dictory actions, which manifest themselves in the characteristic "wandering" motion. Therefore, according to Aristotle such theory would yield transient rather than eternal celestial bodies and movement. Proclus was able to divert some of the force of this damning implication with the "spiralling" of the planets as the locus of different circular movements on different planes.¹¹ So for example, the westerly diurnal revolution and the easterly ecliptical may appear as contrary, but the plane of action of the latter is inclined with respect to the plane of the former (the angle of inclination of the ecliptic is approx 24°, the angle of the dodecahedron: cf. II.A.1). Furthermore, the excursions of the planets, including those of the Moon and the Sun, from a truly circular path are not in themselves indicative of contrary, opposing action, since

they take place in latitude and in distance from earth, not in longitude. They too can be regarded as a kind of spiralling.

"How do we admit (paradexometha) an opposite sense (enantiōsin) to the cyclical movement? The cause of the spiralling (tēs helikos) is not that each of the planets is carried in two opposing motions (phoras), but that each is moved along the oblique circle (ie. the ecliptic) with respect to the equinoctial (to epi loxou kineisthai kuklou pros ton isēmerinon) — for if one were to immediately suppose (autika hupothoito) that the Sun is moved along the equinoctial in a sense contrary (enantian) to that of the universe (ref. to the diurnal motion), this would not be a spiralling (helix ouk estai) although it would be a revolution in an opposite sense (antiperiphoras) ... May not therefore the phrase 'progress in two opposite directions' (Tim 39 B) mean that the planets are moved (kineisthai) at one and the same time (to hama) not only (ou monon) towards the East and to the West, but also (alla kai) in latitude (platos) and in depth (bathos: ie. distance from earth), nearer or further from the earth (prosgeloterous ē apogeloterous) and northerly or southerly (ie. in latitude: there is a chiasmus here); for these two (duo) movements produce, in conjunction with the revolution of the universe, the helix. For the spiral (helix) is the appropriate (prepousa) figure for the planets since they are intermediate between the fixed stars and the sublunar entities, the fixed stars moving (kinoumenon monon) solely in a circle, but the sublunaries moving in straight lines (euthuporoumenōn)" (137).

"For, as it was said before, the circle applies solely to the fixed sphere (epi tēs aplanous), but the straight line (eutheia) to the generation, whereas the spiral to the planets, commingling (summixin echousa) both the curve (periphērias) and the straight line, and the movements in latitude and in depth are the proximate (prosecheis) causes and paradigms of the movements down-here (entautha), viz. the up-down and the sideways

(anō...katō...epi ta plagia)" (138).

But the retrograde phase itself of the 5 proper planets could not be explained away in this manner, because it involves backtracking in longitude as well as excursion in latitude. His answer is to accept that contrariety does exist in the heavens but in a "causal" mode of existence since the heavens are immaterial.

Firstly, the existence of contrariety among the planets agreed with their hierarchical status as intermediaries between the simplicity of the fixed stars and the multi-conflicting complexity among the sublunaries. Secondly, the "causal" mode of existence emphasized that the contrariety is only "formal", and contrary forms can co-exist by themselves without mutual interference. Thirdly, by reiterating that the heavens are immaterial — albeit in relation to sublunary matter — Proclus rendered the heavens "impassive" (cf. II.A.6) and, in effect, denied the gross material substrate necessary for contrariety to result in proper material perishing.

"Therefore it should not be surprising that there is some kind of opposition in some of the movements in the heaven; for... these are not the contraries which conflict with (enantia ta machomena) and are destructive of each other — for these pertain to the enmattered and articulated entities (enula kai merista) — but these are simply the efficient causes (poiētika) of contrarieties (tōn enantiōn)... And the figure of the helix is not an empty coincidence (ouk esti sumptōma kenon), but it appropriately fills (sumplerōi) the intermedium (mesotēta) between the bodies moving rectilinearly and those moving circularly (kuklophoroumenōn)" (139).

"For it is requisite (edei) that the cause of complexity (poikilias) and the principles of contrariety (enantiōseōs archas) are anticipated (proeilephthai) in the heaven; or how could the

heaven comprehend (periexei) the generation and how could it guide (podēgetēsei) the transformation of the sublunary Elements if it did not contain in itself (periechōn en heautō) the principle of contrariety ? Because the heaven is immaterial as far as it is possible among the sensibles (aulos ōs en aisthētois estin), and does not contradict (ou machetai) the contrarieties, which are in it (en autō), nor is at variance (oude stasiazei) with either (pros allela), but it coexists (sunuparchei) with both. And the same star is moved in twofold circulations and it does not have the one 'in itself' (kath' hautō) and the other 'by accident' (kata sumbebēkos), for if I must voice my opinion, it has both circulations 'in itself'; for what is accidental (ti...estin ekei sumbebēkos) over-there among all the immaterial real-beings (aülōn ontōn) all of which are given subsistence (huphistamenōn) from the whole creation (holēs dēmiourgias) ? ... Therefore because (epeidē) the heaven is immaterial - by this I mean the matter (hulēn) which is unstable (anedrastōn), has acquired a bastard beauty (nothōn kallos) and is deformity itself (aischos ousan) - the heaven is able to embrace both contrary movements (enantias kinēseis); for when the real-beings which are contrary are outside (exō) this matter (hulēs tautēs: ie. gross matter) which embraces (stegousēs) nothing, they are concurrent (sundroma) and united (henōtai) with each other, but when they are within matter (en tē hulē), they contradict (machetai) each other because this matter is not able to admit the presence of both 'forms' (eidōn: which are mutually contrary) because of this matter's lack of power (astheneian) " (140).

NOTES ON II.B.6.3

- 1 Astronomical jargon, again, for the eastward positions, meaning "following" in the diurnal movement of the heavens; it also has the connotation of "backwards", for it is in the opposite sense to the diurnal motion, and it is related, also, to the precession, see II.B.6.2.2. Cf. O.Neugebauer, *Hist.of Math.Astr.* op.cit. p.807.
- 2 So, whereas the fixed stars have "two" kinds of motion, the planets have "three", ie. the hierarchy of motion is maintained; cf. Simplicius *In de Caelo* p.462, and see T.Heath, *Aristarchus*, op.cit. p.173-4, and P.Duhem op.cit. vol.II p.203-4. Also, Proclus *In Tim.III* 79-80. For the "splintering" of the "Other" circulation, viz. that of ecliptical motion, see Plato *Tim.36D1-6* ref. to "schisas", meaning, (the Demiurge) "split" the Other circul., and see the discussion in Taylor op.cit. p.152-3.
- 3 "Kata ta auta", "en tō autō", "tropas", all Platonic terms taken from *Tim.40AB*, and used as jargon. "tropas", as A.E.Taylor points out, op.cit. p.220, is not intended to mean "rotations", viz. self-rotations, but "turnings back", as in the ecliptical motion, cf. n.1 above; however, from the overall content, Proclus extends its meaning to include the anomalous movements as well.
- 4 Eg., *In Tim.III* 56
- 5 The "six" directions see Plato *Tim.34A, 40B, 43BC-E*; to which is added the "seventh" motion, that of "rational" rotation, cf. *Laws X* 898, and see G.Claghorn "Aristotle's criticism of Plato's *Timaeus*" op.cit. p.60-1 ff. Also see Proclus *In Tim.III* 122-3. For the debate on what handedness is to be attributed to the diurnal and the ecliptical circulations see, A.E.Taylor op.cit. p.150-151, and T.Heath, *Aristarchus*, op.cit. p.160-163.
- 6 It relates to the problem of physical reality and mathematical modelling; see, II.B.4 note 4. Suffice to note here, that for Proclus the planetary anomalies are real, ie. they cannot be explained away by the sophisticated mathematical systems of epicycles etc; in other words, the anomalous movement of the planets is a "real" problem.
- 7 Cf. Plato *Laws X* 896, where soul, "the movement which can move itself" is firstly the originator of such self-motions as thoughts, choices, desires and the like (tropoi k. ēthē, bouleseis k. logismoι...); Aristotle on the voluntary motion of the planets, *On Philosophy* frg.24. Also see, Cornford *Plato's Cosmology* op.cit. p.107-109. "Will" in general is examined by A.Dihle "The theory of will in Classical Antiquity" (1983), but is not very useful regarding planetary motion. Will is intrinsically linked with the concepts of deliberation (bouleusis) and deliberate choice (prohairesis) see fol. note.

- 8 On the voluntary and deliberate action in planetary motion see, J.M.Rist "Prohairesis, Proclus, Plotinus et alii" in De Jamblique a Proclus, Entretiens Hardt 21 (1975) p.103-122, and R.W.Sharples discussion in Class.Quart.(1982), Apeiron (1983) op.cit. II.B.6.1 n.2, and in B.ICS (1976) op.cit. I.B.8.5 n.6.; also cf. J.M.Rist "Plotinus: the Road to Reality" (1967) ch.9 and 10.
The complex issues of deliberate choice, deliberate action - defined as a narrower class than voluntary action -, volition and voluntariness, and determinism and freedom are rigorously examined by R.Sorabji in "Necessity, Cause and Blame" (1980) p.227-239, p.243-256.
Also see R.W.Sharples "Responsibility, Chance and Not-Being" B.ICS (1975) op.cit. II.B.4 n.7.
A more detailed discussion on the problems of free-will and determinism is beyond the scope of this study; it suffices to add here, that free-will, for the ancients, did not necessarily mean indeterminate behaviour, for the other interpretation was the freedom to follow a single purpose without interference. This was very much applicable to the "perfect" and "rational" entities such as the celestials, since they exist above the material, sublunary realm; hence they have the "free-will" to follow their "good", which is "order".
- 9 Translation of G.E.R.Lloyd "Greek Science after Aristotle" (1973) p.128-9.
- 10 Aristotle De Caelo 270a 22-23.
- 11 On the "spiralling" motion of the planets, Plato Tim.39AB. This is essentially the compound motion of the diurnal and the ecliptical, see eg., G.Vlastos "Plato's Universe" op.cit. p.32-59, the "contrariety", Tim.36D, is nothing more than the opposite sense of direction of the two. More problematic was the recurrence of "contrary" in Tim.38CD for the "overtakings" of the Sun by Venus and Mercury, which Proclus ascribes to the differences in orbital speed, In Tim.III 64-5 (the correct approach for resolving the retrograde motion). See the discussions, Heath op.cit. p.166-7, Cornford op.cit. p.88-92, 106-112, Taylor op.cit. p.196-200, 204-211.
Also see Theon of Smyrna "Mathematics useful for the reading of Plato" (text ed.Hiller, Teubner, 1878) ch.41-43.
Proclus produced a number of theorems for generating complex motions from a combination of simple ones, in connection with astronomy; one of them was used, and cited, by Copernicus. For the detail see, O.Neugebauer, Hist.of Math.Astr., op.cit. p.1035 and diagram p.1431.

7. THE PLANETARY ORDER

That there is any need at all to discuss Proclus on the order of the seven planets (strictly, the "two luminaries" the Moon and the Sun,¹ and the five planets proper) is due to his "whimsicality", as A.E. Taylor called it ("A Commentary on the Timaeus" p.209), to defend the Platonic order of the planets.

Both the Platonic and the Aristotelian-Eudoxan arrangement of the planetary spheres, in an ascending order from the earth, was: the Moon, the Sun, Venus, Mercury, Mars, Jupiter, Saturn.

This order was by no means universally accepted. Although the relative position of the Moon and the triad, Mars, Jupiter, Saturn, were not contested, those of the Sun, Mercury and Venus seem to have been in constant dispute even in Ptolemy's time (2nd c. AD). According to Theon of Smyrna (also 2nd c. AD, treatise² about 20-30 years before the "Syntaxis") some kept to the Platonic and Aristotelian order and placed after the Moon, the Sun, Mercury and Venus, in that order. Others, like an ostensibly 1st c. BC Pythagorean, had maintained the order, Mercury - Venus - the Sun, thus keeping the Sun at "the heart of the universe" (kardia tou pantos) between two triads of planets.³ There was also the mathematical system of Heraklides of Pontus (4th c. BC), the alleged precursor of Tycho Brahe's geo-heliocentric arrangement (the claim now largely disproved)⁴, which joined Venus and Mercury to the Sun. The order with the Sun in the fourth, rather than in the second, position distant from earth may have had some mathematical advantages stemming from the measurements of Aristarchus of Samos (3rd c. BC). But overall, the issue was complex, for it was not just a matter of astronomy, it was primarily of cosmology, a field belonging, also, to philosophy and astrology; thus, different orders co-existed. The rise of the order with the Sun in the middle position to predominance followed from Ptolemy's adoption of it for his famous system, which stamped it, as it were, with his mark of authority. Besides, for the more 'philosophical' thinkers, it had also the more metaphysical virtues (derived from Pythagorean, Stoic and Chaldean

sources) insofar as the Sun held the central place among the planets.⁵

Proclus' defence of the Platonic order consists mainly of an undermining of the others — in the tradition of all Greek philosophers. His actual defence of the Platonic order occupies less space and for some of it he employs Iamblichus as a mouthpiece.

His argument against Ptolemy's order is directed at the way he had arrived at the conclusion, that the planets which keep "equal-pace" (isodromoi) with the Sun, viz. Mercury and Venus, are below it (cf. "Syntaxis" IX,1).

Ptolemy had admitted that there is no significant parallax for Venus and Mercury, this being the method for estimating linear distances (using the so-called parallactic instrument). He had also argued that any objections regarding the possibility of occultations — which had not been observed — of the Sun by the intervening bodies of Venus and Mercury,⁶ could be answered by noting the differences in latitude due to their differently inclined epicycles. Similarly, the Sun is not eclipsed by the Moon at every New Moon. He had concluded, that the placing of the Sun in the middle of the 7 celestial bodies is a convenient way for dividing the 5 proper planets into two groups: those who move angularly far from the Sun (modern term is "elongation") and exhibit significant parallax, ie. Saturn, Jupiter and Mars, and those who "satellite" the Sun, ie. Venus and Mercury.⁷

For Proclus this order is indeed a "conjectural assumption" (pithanologeia), not "proven by demonstration" (apodeixis anankaion).⁸ As he points out the parallax method is useless because the Sun's light obscures Venus and Mercury when the measurements have to be made.⁹

Furthermore he is doubtful about the manner by which Ptolemy had mathematically fitted the ratios of apogee to perigee (the

defining limits of each "sphere") for Mercury and Venus between the parallactically measured apōgee of the Moon (upper limit of the sphere of the Moon) and the perigee of the Sun (lower limit). Although he does not explicitly voice it in precisely these words, it is clear that he regarded as a mere fortuitous coincidence, the result that the mathematically adjusted ratios of apogee to perigee for Mercury and Venus (see Ch. 4) could be made to fit successively very neatly between the objectively measured distances for the Moon and the Sun.¹⁰ After all, Mercury's and Venus' distances could not be measured directly (see criticism of the parallax method, above).

The other party who, unfortunately for a Neoplatonist, also believed in a Sun situated at the middle of the planets were the "Chaldeans" and the "Theurgists".

Proclus' response to them is to divert the implicit challenge so to speak, by placing it within an astro-theological context. He maintains — and this is his actual defence of the Platonic order — that in terms of the physical and visible mode of the cosmos, the Sun is more closely related to the Moon and should therefore, appropriately, be adjacent.¹¹ Both are the "luminaries" (phōta) of the heavens, and the Moon's phases are due to the Sun; with regards to the domain of generation the Sun and the Moon are like "father" and "mother" to it. Anyway, it was Anaxagoras — a "physicist" — who was the first to propose this order. The arrangement of the planets, which has the Sun in a central middle position, insofar as it is Chaldean, refers to a more meta-physical interpretation of the planetary order.¹²

Proclus knew that many seventhfold classifications with planetary correspondences, which he himself used, such as the 7 ages of man and the 7 classes of people in the ideal city, followed the Chaldean order,¹³ most probably because of its Babylonian astrological origins. Such metaphysical view of the heavens is appropriately "heliocentric" because it emphasizes the Sun's

role as the source of light, both intelligible and sensible, rather than its purely corporeal aspect.

"... and this in fact is said by the Theologians (theologoi: the "Chaldean" or "Hellenic") when they talk about the 'firmaments above-the-world' (huperkosmiōn stereōmaton). On this account therefore it seems to me that Plato (Tim 39 B2-C1) gave a twofold constitution to the Sun, the one in common (homou) with the 7 cosmic governors (kosmokratorsin: viz the 7 planets), when he discussed the formation of their bodies and the placing in their circulations (periphoras), but the other with respect to the kindling of the light (tou phōtos exapsin), according to which he gave-a-share (metadidōsin) of the hypercosmic power to it; for the bulk-volume of the Sun in itself (kath' heauton ton onkon) is one thing, but its 'principal' characteristic (hēgemonikēs idiotētōs) is another, due to which the Sun is called king of the visible universe (basileus...tou horatou pantos) and stands analogous to the One source (mian pegēn) of good (agathōn)" (141).

This is the Sun in all its glory as the visible representative of the One source of All. About this Sun all the other celestials "circulate as a chorus"¹⁴ and "escort it as satellites"; Mercury and Venus perhaps more so than the others (see Ch. 5 on the Satellites).

"For through the motion of these planets, which are circulating around the Sun (peri ton hēlion choreuontōn), is produced the recognizable time (sunegnōsmenos)" (142). "But if you must insist (ei dē kratoiē) that the Sun is arranged in the middle of the 7 planets, just as the theurgical oracles (logoi) and the gods say, with Mercury above the Moon, observe (skopei) that this order is appropriate (prosēkousa) in relation to the protectors (prostatais: the planets as astro-theological entities) of the generation as a whole. For the Sun is escorted (doruphoreitai) by all the cosmic governors (kosmokratorōn: ie.

the other 6 planets) both in its capacity as the king of everything visible and its ability to express-by-imitation (apomimoumenos) the demiurgic powers through the light-rays: it brings forth (gennōn) as well as fills (plērōn) with life and renews (ananeazōn) the generated things. But above it are the 3 masculine (an astrological term) planets which exhibit (epideiknumenoi) active creating (drasterious poiēseis) with respect to the cycle of generation; Saturn combining, (sunkrinōn), Mars distinguishing (diakrinōn) ... and Jupiter bringing the other two into symmetry (summetros). Below it are the other three, of which the two at each end (ie. Venus and the Moon) are feminine (thēleis) but the one in the middle, Mercury, is common to both genders (koinos: also astrological term)" (143).

Nevertheless Proclus thought that the Platonic order could also match this "heliocentric" emphasis. He notes that according to it the Sun is between two pentads: (i) Above it, the five proper planets-wanderers. (ii) Below it, the Moon at the boundary with the realm of generation, and the 4 sublunary Elements.¹⁵

By taking into account both the planetary (but not the fixed stars) and the sublunary spheres together he not only emphasized the unity of the cosmos but effectively made the Sun's middle position even stronger than in the Chaldean arrangement. Whereas in the Chaldean the Sun is metaphysically at the centre of the 7 planets, in the Platonic - according to Proclus - it is at the "centre" of a system composed of both the planets and the earth.¹⁶

NOTES ON II.B.7

- 1 The Sun and the Moon referred to as the "luminaries" (phōta), see Proclus Hyp.Astr. p.88,22, 104, 126, 144 ; and cf. Ptolemy Tetrabiblos II,17
- 2 Theon of Smyrna "Mathematics useful for the reading of Plato" (ed. Hiller) p.141-143.
- 3 The 1st c. BC Pythagorean is Alexander of Ephesus, or Polyhistor, not of Aetolia, as Theon wrongly calls him, T.Heath, Aristarchus, op.cit. p.112-3. This theme of the Sun as the "heart" became popular in the "heliocentric" systems of the Renaissance and later, cf. Harvey's dedication to Charles I of his treatise on the circulation of blood.
- 4 On Heraklides of Pontus, T.Heath op.cit. p.249-283; O.Neugebauer "On the allegedly heliocentric theory of Venus by Heraclides Ponticus" (1972) repr. in "Astronomy and History: Selected essays" (1983) p.370-72; "A History of Ancient Math. Astronomy" (1975) op.cit. p.694-8; H.B.Gottschalk "Heraclides of Pontus" (1980) esp. p.69-82. Very briefly, both Neugebauer and Gottschalk agree that the refs. to "over" and "below" mean distances in longitude not depth, viz. distance from earth, ie. they mean "ahead" and "behind", but they differ insofar as Neugebauer is categorically against any inferences for a heliocentric system; Gottschalk seems to allow such possibility as an added bonus for explaining the changes in brightness (brightness as a function of distance). Thus it would be fair to say that Heraklides' system was not an important factor in the development of an "helio-centred" arrangement of the planets. It is certainly more probable that the cosmic dimensions as measured by Aristarchus and Archimedes were instrumental in shifting the Sun further away from the Moon, see fol. note.
- 5 The two tables of distances for the Moon, Sun, Venus and Mercury assumed by Archimedes, see O.Neugebauer "Aspects of early Astronomy" (1972) repr. in Astronomy and History op.cit. esp. p.365-67, and Hist.of Math. Astr. op.cit. p.647-651: according to the one table of values, the Moon - the Sun - Venus - Mercury, and according to the other, the Moon - Venus - Mercury - the Sun. The estimates of Hipparchus and Poseidonius put the Moon approx. 3x further than accord. to Aristarchus, and the Sun 7x and 33x respect; Ptolemy put the Sun approx. 3x (using values and tables from Heath and Neugebauer). The metaphysically inspired arrangements which placed the Sun in the middle of the heavens/ world were not necessarily concerned with astronomical developments; the "Pythagorean" eg., was clearly not, for it was based on the "harmony of the spheres", cf. Theon ref. above, and the "Chaldean" was astrolog. Also see, Heath op.cit. p.256-9; Taylor op.cit. p.193-4; Neugebauer, Hist.Math.Astr. op.cit. p.148, 604, 690-3, 785, 1029.

- 6 These are in fact the "transits" of Mercury and Venus, which are not only difficult to observe because of the Sun's brightness, but rather rare too (approx. 14 times a century for Mercury). On Ptolemy, also see Neugebauer Hist.Math.Astr. p.691.
- 7 Also cf. Proclus In Tim.III 62,17-24.
- 8 In Tim.III 62,19 f., Hypot.Astr. II ch.5 par.11.
- 9 Hyp.Astr. p.144; cf. In Tim.III 62,6-16; the measurements have to be made at culmination, when Mercury and Venus are at the meridian, Hyp.Astr. p.116. Also see Neugebauer op.cit. p.100-118, 148.
- 10 The full analysis of fitting Mercury and Venus between the Moon and the Sun is given in In Tim.III 62,24-63,20: (my trans.) "From what Ptolemy had shown in the Syntaxis, if the unit distance is from the earth's centre, the distances yielded are thus: the minimum distance (elachiston apostēma) of the Moon is 33 earth radii, and the maximum (megiston) is 64 - by making integers the ratios (moria) which have the monad as a denominator -, and again, the minimum distance of the Sun is 1076 units, and the maximum 1260; and if the hypothesis is that the ratio of Mercury's minimum distance to the maximum is nearly (engista) 34 to 88 (ie. 34/88), then it is evident, that by joining together the max. distance of the Moon to the min. distance of Mercury, the ratio of the max. distance of Mercury to the min. is (nearly) the same as 166/64. Again, because for Venus the proportion of the min. distance to the max. is approximately evaluated as 16/104, it is obvious (phaneron), that by joining the max. distance of Mercury to the min. of Venus, the proportion of the max. distance of Venus to the min. will be as the numbers 1079/166; consequently, since the Sun's min. distance is 1076 units, differing only so little from Venus' max. distance (ie. 1079) so as not to be noticed (even) by the hypotheses themselves, it is evident that the spheres of Mercury and Venus can be arranged (esti takteon) between those of the Moon and the Sun; thus Ptolemy joins the Moon's max. distance to Mercury's min. and Mercury's max. to Venus' min., and Venus' max. very nearly with the Sun's min. For it is necessary that there is no void (between the spheres). Through these sort of arguments Ptolemy concludes (sunagei) that the Sun is in the middle of the seven planets". Also see C.Mugler's notes on the construction of the ratios in Festugière's Comm. sur le Timée vol.IV p.86-7. Also cf. Proclus Hyp.Astr. p.220-224.

- 11 In Tim.III 60,31-61,7; III 63,24-27; III 65,17-22.
Macrobius, Somn. Scipio I 18.3, also defended the Platonic order on the grounds that the Moon is the only celestial body to be directly illuminated by the Sun, therefore it is the only celestial body "under" the Sun.
Anaxagoras etc., Proclus says that it is according to Eudemus' evidence, In Tim.III 63,28-30. Proclus seems to be the only source for this order of planets, see Heath Aristarchus op.cit. p.85, although it is more certain that Anaxagoras' arrangement was the more general, the Moon - the Sun - the stars, as for Parmenides, Heath p.74.
- 12 Proclus in this respect accepted the "Chaldean", as well; this is why Rosan "The Philosophy of Proclus" op.cit. p187-9 and particularly Beutler, art. Proklos in Pauly-Wiss. p.241, make the mistake of giving the Ptolemaic order as the (only) Proclan order of the planets.
- 13 Eg., In Tim.I 34; In Alc. p.196.
However, the order of faculties of soul and that of its descent follow the Platonic order, In Tim.III 355.
- 14 The Sun as self-luminous, whereas the planets may be reflecting the solar light, or as self-luminous but very faint, cf. In Rep.II 223-4; and see the discussion in Taylor op.cit. p.213-4.
The planets "dancing as a chorus", Pl.Th. VI 358,
Cf. In Tim.II 312-3; Festugière Comm. sur le Timée op.cit. III p.358 n.2, and H.Lewy op.cit. p.195 n.75 & 76.
Also see Taylor op.cit. p.242-3 for a discussion of the circulation of Mercury and Venus.
- 15 In Tim.III 67,27-68,10.
- 16 The metaphysical "heliocentred" order, with the Sun as the source of light and king of the visible universe, together with the Pythagorean connotations was to be Neoplatonism's legacy to the Renaissance, and became the physical heliocentric system of Kepler; see, eg., G.Holton "Thematic origins of Scientific thought: Kepler to Einstein" (1973) p.69-90, esp. p.80-82, where Proclus is mentioned as well as the role of the Sun, as a mathematical, physical and metaphysical centre.

8. EARTH AND THE CELESTIALS

The status of the earth and its motion in ancient science is still perhaps a controversial subject. It would be fair to say that there is a concomitant historiographical problem, inasmuch as with the benefit of our present knowledge, and hindsight, it is very difficult not to praise or blame the ancients according to the extent to which they came nearer or further to modern views on the earth's motion.

It is certainly true, that Plato's ambiguous passage in the *Timaeus* 40 B9-C3 about the earth¹ was debated as much by the ancients as it is by the moderns. But it is equally true, that notwithstanding Aristarchus' mathematical heliocentric system, after Aristotle and certainly by Ptolemy's time it was regarded as the unmoved centre of the cosmos. After all, the essence of the problem was not earth's motion in itself, rather, that given the phenomenon of celestial diurnal motion was it heaven or earth which moved in a circular fashion.

Despite its status as the unmoved body at the centre of the world, the earth, for Proclus, possesses certain general attributes which underline the unity of the cosmos rather than the dichotomy into heaven and earth.

Like the celestials, the earth is a "living" body as a member of a universe which has a World-Soul and a World-Body. "And if the truth (to alēthestaton) is to be said about the earth, it is a living-being (zōon) composed of a divine soul (psuchēs theias) and a living body (sōματος zōntos); ...for there is in it (en autō) an immaterial (aulos) and separable (chōristos: also, distinct) intellect which maintains (sunechōn) in the same position (en tautō: ie. at the centre of the cosmos, cf. III 136,4) this bulk-volume (tonde ton onkon), and a divine soul turning (choreuousa) about this intellect, and an aetherial body (sōma aitherion) immediately attached (exērtēmenon) to the soul, and lastly is this visible bulk (houtos ho phainomenos onkos)" (144).

Like the planets, and especially the Sun and the Moon, the earth is also an "instrument of Time",² since the opacity of its Earth-Element generates the nights and is therefore responsible for the day-night cycle. "And it is evident, that the earth creates (poiētikē) the night; for it produces a cone (kōnon) and this cone is its shadow (skia), and its size (megethos) and figure (schēma) gives magnitude and shape (tosondi kai toiondi schēma) to the shadow of night. But how is the earth likewise the creator of day? Does it not produce both the day and night together?" (145). "The earth (hē gē) is therefore the creator (dēmiourgos) of both of these, producing them both in conjunction with the Sun (sunapotelousa tō heliō); except that the Sun is more the cause of day (mallon...helios hēmeras), but the earth is the cause of night (gē nuktos aitia)" (146).

And in a remarkable statement Proclus does not hesitate to call the earth a kind of star: "If these are true, one must also call the earth a kind of star (tēn gēn astron ti rhēteon), not with respect to its visible bulk but because of its aetherial vehicle which is star-like (astroeides)" (147).

The expected differences from the celestials, such as the lack of motion, relate to the earth's physical properties rather than to the metaphysical (cf. Ch. 7 on planetary order). In Proclus' scheme, the root difference is that in the heavens Fire is predominant but on earth the Earth-Element. As has been discussed in extent elsewhere (see Section II.A.3), according to Proclus' theory of the Elements, Fire is "active" and "rapid-moving" (oxukinēton), whereas Earth is "difficult" to move (duskinēton) or even unmoved (akinēton), which together with its other quality-powers (dunameis), obtuseness and grossness, make it an overall inert and resistant Element.

Earth's natural (kata phusin) state of motion, therefore, is to be at rest. And according to Proclus' theory of motion for the Elements (see Section II.A.5) the place where this "natural"

motion is exhibited is the Element's own proper place (oikeios topos). Not surprisingly, since the Earth-Element's proper place is the earth itself, the earth is at rest.

But this produced an asymmetry with the other 3 Elements, for according to Proclus their natural motion in their proper place is circular. He did in fact notice it and went as far as to admit that the earth might have had a circular motion as well: "Every simple body which is in its own proper place (oikeiō topō) either remains stationary (akinēton menai) or is moved in a circle (ē kuklō kineitai) in order that it never leaves (mēde apoleipē) its proper place ... and therefore the celestial body by being fiery, when it moves, it moves circularly by necessity; accordingly, the earth also (epi kai hē gē), which does not leave the middle of the universe, if it were moved (eiper ekineito) it would move circularly (kuklō an ekinēthē)" (148).

The reason³ why the earth is not moved circularly, not even around its axis like the celestial bodies, is the physics of the Earth-Element. In other words, it is the physical restrictions which keep the earth both unmoved and at the centre of the universe, and consequently make it physically different from the celestial bodies.

The earth's more metaphysical properties make it, in Proclus' system, more like the celestials, and is generally through these that it is "fit" (epitēdeios) to receive their influences.

NOTES ON II.B.8

- 1 In essence there are two problems: (i) whether the earth has an orbital motion, which is the issue of geocentricity or heliocentricity, and (ii) whether the earth has an axial, self-rotation, which is linked to the issues of diurnal motion for the heavens and the distance of the fixed stars from earth (ie. estimates or notions of near infinite heavens were better suited to a stationary sphere of the fixed stars, cf. . Heraklides and Aristarchus).
The debate on Plato centred on the exact form and interpretation of the participle "eillomenēn" or "illomenēn": the first had connotations of movement, but the second, although it could mean "rolled", it was mainly interpr. as "conglobed" or packed (around the centre or axis of the world).
The issue is very complicated, and an examination of it in this study is not appropriate, since Proclus very definitely insisted that the earth is stationary at the cosmic centre, and that correct interpr. of the Platonic term is "illomenēn", as in "conglobed" or "congregated" (sunagomenēn) around the cosmic centre.
For Proclus' account, including the defence against Heraklides, In Tim. III 133-144; and cf. Simplicius In de Caelo 517-9.
Also see, T. Heath, Aristarchus, op.cit. p.174-181, 186-9, 250-255, 304, 308; F. Cornford Plato's Cosmology op.cit. p.120-137; A.E. Taylor op.cit. p.226-240; and the analysis by G.S. Claghorn op.cit. p.71-83. Also, J.L.E. Dreyer op.cit. p.72-8, and H.B. Gottschalk "Heraklides of Pontus" op.cit. p.58-69, 81-87.
- 2 Earth is a passive instrument of Time, it does not have to counter-rotate to produce the day-night cycle, cf. Cornford p.131-4, 137. Also cf. Simplicius In de Caelo p.511-512.
- 3 This is of course hardly a "reason", more of a justification of a position which has been established already.

REVIEW AND CONCLUSION

Neoplatonism is usually looked upon as a philosophy rich in metaphysical and theological content but largely irrelevant to science. This view seriously underestimates its scientific and physical content. Neoplatonism attempted to address all forms of knowledge including the "natural". Natural or Physical Inquiry had after all been part of Platonic philosophy at least since the "Timaeus". Stoicism and (neo)Pythagoreanism were two other philosophies renowned for their strong physical and mathematical components, respectively, which influenced Neoplatonism. There are numerous treatises by Neoplatonists which are concerned with the physical universe, although most of them are in the form of commentaries on appropriate titles from Plato and Aristotle according to the literary fashion of that age. These commentaries on the "Timaeus", the "Heavens", or on the "Physics" are the main sources, but an additional, considerable amount of references on physical entities can be found scattered in works on entirely different subjects, such as ontology and ethics. This is characteristic of their cohesive and synthetic approach.

For Proclus, physical conceptualization was likewise an integral part of his whole philosophy. This was so by necessity, because the physical world was conceived as the "visible and tangible" aspect of a universe governed by incorporeal causes, and structured in accordance to the same set of philosophical and logical principles. To have explained the "sensible", that perceived by the senses, in a totally different way from the "intelligible", that apprehended by the intellect alone, would have constituted in his eyes a failure of his philosophical system, for it would have proved the whole universe to be inconsistent, if not irrational. Belief in the essential unity of the cosmos, far from being "irrational" (see the Preface), was in fact the very assertion on the rationality of the cosmos, for the existence of this unity is what renders certainty and knowledge possible in science, according to Neoplatonic thought.

In view of the application of his system in diverse fields in a particularly cohesive manner, his concern with a rational universe, and his avoidance of ad hoc cosmological hypotheses, Neoplatonism may be said to emerge also as a method, with the function of providing a consistent and integrated means of explanation for all the apparently unrelated modes of defining and describing things.

There are a number of philosophical leitmotifs which constitute the core of Neoplatonism as a universal form of "explanation" for obtaining "real" knowledge. The most well-known is the arrangement of entities and properties in a hierarchical fashion. It is constructed from other, more fundamental general principles, such as the triadic structuring and the operation of similarity and sympathy. Basically, it is the identification of logical with metaphysical priority; but in addition, it is a cosmology, being the graded ordering of the various entities of the universe both visible and invisible, physical and metaphysical. Each level in the hierarchical sequence constitutes a certain mode of existence, orderliness, dimensionality, etc. Physical objects appear, predictably, among the lowermost levels or grades, since they represent the least "whole" and most "particulated" kind of existence. Their concomitant attributes are corporeality, motion and change, varying degrees of order, etc. The heavenly bodies are to be found in the orderly strata "up-there", whereas the multichanging inhabitants of the sublunary realm are, naturally, "down-here".

Associated with the hierarchical arrangement is the less well-known, Janus-faced theme, that "everything is in everything but . . . appropriately in each". On the one hand, this was at the heart of Neoplatonic philosophy for it endeavoured to address the problem of one and many: that there is an underlying unity in diversity, and that unity multiplies into diversity. On the other, it enabled Proclus to explain variety and heterogeneity with one simple rule. For example, the four Elements are not only the traditional four sublunary Elements but also the four species of being, they exist as "forms" and as "subterranean sediments". Similarly, the

same 4 Elements are the constituents of the bodies of two diametrically different entities, the celestial and the sublunary, which renders the Aristotelian 5th Element redundant.

In order to avoid the tendency to merge distinct identities, and thereby confuse different states of existence and different functions, Proclus emphasized repeatedly the role of "appropriateness". For him the second aspect of the theme, which relates to the mode proper to each state of being, was vital in keeping the distinctions present and in preventing the collapse of the hierarchical ordering into a unified but chaotic heap. Hence he insisted that the "Physical Inquiry" (phusiologia) should concentrate on the physical properties and interactions, and he chastised those - even respected Neoplatonists like Porphyry and Iamblichus - who took on many occasions a more "elevated" view of nature and mingled indiscriminately metaphysics with physics.

A parallel consequence of this was the idea that the entities of the natural world present a different aspect of themselves and their relationships depending on whether the observer-examiner concentrates on their intelligible or sensible part. There are many examples of this in Proclus' physical theories. In the Elements, the plane triangles are assumed to be physical and have a nominal depth. The tri-dimensional corpuscular Elements are assigned three primary physical powers each. Place is, on the one hand, tri-dimensionally extended space, but on the other, the active instrument of the World Soul. The latter also appears in his conception of the celestial spheres. But it is in the dual arrangement of the planets (see I.B.7), where he accepted the Chaldean (and Ptolemaic) order, while stubbornly defending the Platonic, that the metaphysical and physical views of the universe are sharply contrasted. Whereas in the Chaldean the Sun is the "king of the visible universe" and rightfully occupies the middle position among the planets, according to the Platonic the Sun is just a celestial body like the others and no longer occupies that privileged place.

Proclus is on the whole remarkably consistent in his application of the appropriateness rule, even if at times, such as in the defence of the Platonic order of planets, it may be thought as misdirected. His theories preserve the distinction between the purely corporeal properties of physical things and the incorporeal. But there are instances where this is not so. In the Elements theory, the rectilinear Fire polyhedra are said to curve as they approach the spherical heavens, because of "something better" in their nature: ie. the corporeal changes in the shape of the polyhedra are explained by employing an incorporeal, metaphysical property. In the Celestial theory, the essentially incorporeal status of the "satellites" does not seem to be clearly stated. Again, the distinction between the metaphysical order of the planets (the Chaldean) and the physical (the Platonic) seems to be blurred, when he proposes that the latter may have an equally good metaphysical role (the Sun between two pentads).

Yet such are the vagaries of this dual view of the cosmos, that had Proclus developed the metaphysical into a physical system (cf. Kepler), the most likely result would have been an heliocentric system with the planets and the earth (also viewed as a "starry body") revolving around the "king" Sun. Satellites would revolve around each planet much as the Moon does around the earth. Finally, all the bodies would have an axial, spin rotation.

This leap would not have been too great to take, since the underlying premise of his philosophy was, that all actions and motions are initiated by incorporeal, metaphysical causes, circular motion being perhaps the best example of this. So, it would not have been too unthinkable to assume that any metaphysical relationship between things, such as the celestials and the earth, would tend to manifest itself in a physical form, too. Besides, this is the sort of argument which can explain the few, but perhaps significant, instances where Proclus appears to blur the distinction between the physical and metaphysical domains.

However, his system of the planets and the earth in fact remained geocentric, because the physical properties of the Earth kept it unmoved at its traditional and proper place, the centre of the physical universe.

Because of the emphasis on "proper place" in the hierarchical arrangement, Neoplatonic schemes and especially that of Proclus are frequently described as "rigid". Such a view, firstly, overlooks the trivial but nonetheless true fact that the hierarchy did change from philosopher to philosopher: Iamblichus' is different from Plotinus', and Proclus' is different from Iamblichus'. It was never monolithic. Both the modes of existence and their relative ranking were in constant dispute even after Proclus. But the alterations in the number, order or properties were never catastrophic to the hierarchical method of explanation itself. This, in turn, emphasizes its role as a working, meaning modifiable, hypothesis: that which can be modified in the light of further thought within the style of philosophy which marks it from any other. Proclus' scheme may give the impression of being 'firmer' (or "rigid") only because he is more systematic over its structure and application than the rest.

Secondly, it ignores the basic component of the hierarchy, ie. the triad, remaining-proceeding-returning, which is fundamentally a dynamic and continuous process, although, strangely to our thinking, it is essentially non-dimensional (or perhaps point-dimensional) and certainly non spatio-temporal. All forms of motion ultimately originate in this process. In conjunction with the concept of proper place and appropriate mode of existence, both the circular, periodic movements and the rectilinear could be explained with one principle. The circular movements, such as that of the stars and the three Elements (excluding Earth) in their own place, are characteristic of entities which do not necessarily require progression to another level of existence, and so proceed and return with respect to themselves only. The rectilinear, such that of the
terrestrial

bodies and the up-down movement of the Elements, are characteristic of entities which are not in their own proper place and so proceed from one state to another.

But the concept which stresses even more strongly, and appropriately, the dynamic nature of the Neoplatonic view of the world is that of "dunamis" itself. Neoplatonists used it often and in a variety of contexts, ranging from the Aristotelian-based "potential existence", to the theurgic "powers", including the technical term for "power to proceed". As Proclus formulated it, all the different types of "dunamis" being facets of the dual power to be acted upon and power to act, the relatively more passive served as the Neoplatonic equivalent of potentiality, the power to pre-subsist or to exist in principle, and the more active described virtually everything else from the characteristic quality of a thing, to the ability to cause, act or create. Thus "power" is the property characteristic of each and every thing, which determines its movement and behaviour, and enables it to affect or interact with others. "Quality" or "physical power" is the power of the Elements, and "volition" or "will" is one aspect of the power of the celestial bodies.

So, although Proclus' theories of the Elements and the celestial bodies are based, respectively, on the Platonic quantitative, geometrical 4 Element theory, and the concept of soul as the principle of self-motion, the ideas of hierarchical ordering and proper-appropriate place, "dunamis" power, plus the overall mode of explanation make them distinctly Neo-Platonic.

Proclus' contributions as a scientist are manifold. His mathematical competence (not the subject of this study), it would be true to say, has never been doubted, and continuing research in the history of mathematics seems to reveal new aspects of it; for example, David Fowler of Warwick University has found an early formulation of the theory of ratio. However, a full and detailed study of Proclus' mathematics is still awaited.

In physics, one can certainly list some of his 'achievements': the clear formulation of the geometrical theory of the Elements and the wholesale rejection of the Aristotelian Elements, viz. the 5th Element of the heavens, and the fundamental qualities, hot-cold, dry-moist, light-heavy, of the 4 sublunary Elements; the further expansion of the concept of place as three-dimensional space and, again, the rejection of another Aristotelian idea, that of place as boundary; and the development of the theory of celestial motion as free motion in space with the concomitant rejection of material "crystalline" spheres and epicycles.

However, trying to assess Proclus as a physicist presents problems most of which may be traced to the general attitude of ancient philosophers towards the world of matter. Nevertheless, although Neoplatonism too argued against total involvement with material things, it retained the classical, optimistic view of the material world, seeing Matter as complementary to the One origin of the universe and therefore to a degree "good". In this it is, on the whole, unlike Hermeticism and especially Gnosticism, the other two isms of the period with which it is often quoted in tandem.

But perhaps the main obstacle is Proclus' different form of expression and framework of thought concerning the universe, from our own. One way of overcoming such a barrier is by attempting to translate, so to speak, these concepts into modern terms or concerns, a task fraught with methodological and epistemological dangers, in addition to the historical problems. Nevertheless, it is tempting to make some speculative associations with modern notions:

One idea, which is peculiar to Proclus, is that the whole of space is a spherical body of light. A not too unfamiliar notion in view of Einstein's curved space delineated by light geodesics, which as a whole may indeed be spherical.

The parallels between the concept of "dunamis" and field of force in Stoic physical thought have already been indicated elsewhere. As mentioned earlier here (II.A.3), in Neoplatonism

"dunamis" as a field of force operated in a particular as well as in a diffuse, general form. Such a field-force, in itself immaterial, may exert its influence beyond the body concerned, so interaction can exist between bodies not in direct (bodily) contact. All these field-forces are essentially differentiated developments of one "primary force" (prōtēs dunameōs), as Proclus called it, which is reminiscent of the present unified field theories. Since everything in the universe is due to one unified cause, then the cosmos is ultimately a unity, which consequently warrants a uniform mode of explanation. Uniform does not mean exactly the same at all circumstances, since different rules apply, or rather prevail, at different conditions. Similarly, in present-day physics there may be only a few general laws, but the kind of physics that applies to each particular condition is depended on the magnitudes of size, velocity, charge, mass or energy involved, ie. the precise form of explanation is hierarchically dependent.

All this perhaps helps to demonstrate, that intellectual activity in Late Antiquity was far from being a spent force, and that due to Neoplatonism it was developing into new directions, which sought to examine the very fundamentals of the cosmos in an especially integrated and systematic way.

In conclusion, the least that can be said about Neoplatonism is, that its physical content is a worthy subject of the History of Science, and merits further study.

LIST OF QUOTED PASSAGES

Translations are my own; where indicated, they are based on existing translations, as specified, with some amendments.

Part I.

- (1) El.Th. proposition 1.
- (2) El.Th. prop. 28, (E.R.Dodds).
- (3) Pl.Th. III 18,12-20.
- (4) El.Th. prop. 21, (E.R.Dodds).
- (5) El.Th. prop. 28 (different part from (2)).
- (6) El.Th. prop. 108, (E.R.Dodds).
- (7) El.Th. prop. 99. (E.R.Dodds).
- (8) Pl.Th. III 27,20-24.
- (9) El.Th. prop. 65, (E.R.Dodds).
- (10) El.Th. prop. 103, (E.R.Dodds).
- (11) Pl.Th. VI, Portus text ed., p.347.
- (12) Pl.Th. VI p.344.
- (13) Pl.Th. VI p.352.
- (14) Pl.Th. VI p.352.
- (15) Pl.Th. III 6,21-24.
- (16) Pl.Th. III 7,11-13.
- (17) Pl.Th. IV 59,18-25.
- (18) Pl.Th. VI p.384.
- (19) Pl.Th. III 20 - 26.
- (20) Pl.Th. III 13,4-17.
- (21) El.Th. prop. 11, (E.R.Dodds).
- (22) El.Th. prop. 13, (E.R.Dodds).
- (23) El.Th. prop. 113, (E.R.Dodds).
- (24) Pl.Th. III 16,9-17,1.
- (25) El.Th. props. 89 & 90.
- (26) Pl.Th. III 32,14-23.
- (27) El.Th. prop. 120, (E.R.Dodds).
- (28) El.Th. prop. 64, (E.R.Dodds).
- (29) El.Th. prop. 114, (E.R.Dodds).

- (30) El.Th. prop. 138, (E.R.Dodds).
- (31) El.Th. prop. 138.
- (32) Pl.Th. IV 12,6-14.
- (33) Pl.Th. IV 84,1-6; 84,12-17; 86,8-17.
- (34) Pl.Th. V p.248.
- (35) Pl.Th. V p.249-50.
- (36) Pl.Th. V p.358.
- (37) Pl.Th. V p.265-6.
- (38) Pl.Th. V p.281.
- (39) Pl.Th. V p.258-9.
- (40) Pl.Th. V p.289.
- (41) Pl.Th. V p.289.
- (42) Pl.Th. V p.273.
- (43) Pl.Th. VI p.346.
- (44) Pl.Th. VI p.367-8.
- (45) Pl.Th. VI p.376-81.
- (46) Pl.Th. VI p.351-2.
- (47) Pl.Th. VI p.349.
- (48) Pl.Th. VI p.347.
- (49) Pl.Th. VI p.255.
- (50) Pl.Th. III 8,15-18.
- (51) In Tim. II 266,1-5.
- (52) Pl.Th. VI p.401-2.
- (53) Pl.Th. VI p.404-5.
- (54) Simplicius In Phys. 611,10-11, (S.Sambursky, Concept of Place).
- (55) Proclus In Tim. III 32,27-30.
- (56) El.Th. prop. 200, (E.R.Dodds).
- (57) Pl.Th. III 20,9-14.
- (58) El.Th. prop. 71, (E.R.Dodds).
- (59) El.Th. prop. 72, (E.R.Dodds).
- (60) In Tim. II 65,21-24.
- (61) El.Th. prop. 59, (E.R.Dodds).
- (62) Pl.Th. III 39,24-40,4.
- (63) Pl.Th. III 34,7-11.
- (64) In Tim. I 384,27-385,16.
- (65) In Tim. III 328,20-31.

Part II.

- (1) Simplicius In de Caelo 641,1-5.
- (2) ditto In de Caelo 648,19-21.
- (3) ditto In de Caelo 648,21-23.
- (4) Plato Tim. 53B 4-7, (R.G.Bury, Loeb)
- (5) Proclus In Tim. II 65,6-8.
- (6) Syrianus In Metaphysica 85,38-86,2, (S.Sambursky, Concept of Place).
- (7) Proclus In Tim. II 39,18.
- (8) In Tim. II 51,3-7.
- (9) In Tim. II 38,13-16.
- (10) In Tim. II 39,21-25.
- (11) In Tim. II 40,23-41,2.
- (12) In Tim. II 12,21-25.
- (13) In Tim. III 113,25-26.
- (14) In Tim. III 114,1-6.
- (15) In Tim. II 9,18-26.
- (16) In Tim. III 113,29-32.
- (17) In Tim. II 6,11-14.
- (18) In Tim. III 321,22-25.
- (19) In Tim. II 49,14-18.
- (20) In Tim. II 46,19-27.
- (21) In Tim. III 113,16-22.
- (22) In Tim. II 9,11-14.
- (23) In Tim. II 44,1-4.
- (24) In Tim. II 10,11-16.
- (25) In Tim. II 11,18-24.
- (26) In Tim. II 44,5-8.
- (27) In Tim. II 17,18-20.
- (28) In Tim. II 49,23-25.
- (29) In Tim. III 114,24-29.
- (30) In Tim. III 142,3-8.
- (31) In Tim. II 43,26-28.
- (32) In Tim. II 51,20-27.
- (33) In Tim. II 51,29-30.
- (34) In Tim. II 46,12-18; 46,31.

- (35) In Tim. II 46,19-23; 47,1.
- (36) In Tim. II 47,28-33.
- (37) In Tim. II 46,23-25; 47,2.
- (38) In Tim. I 39,1-3.
- (39) In Rep. II 69,3-5.
- (40) In Tim. III 111,22-112,1.
- (41) In Tim. III 112,13-16.
- (42) Simplicius In de Caelo 37,33-34.
- (43) Plotinus Enn. IV,5,3, (A.H.Armstrong, Loeb).
- (44) ditto Enn. IV,5,6, ditto
- (45) ditto Enn. IV,5,7, ditto
- (46) ditto Enn. II,1,7, ditto
- (47) Proclus In Tim. II 8,14-16.
- (48) In Tim. II 8,8-13.
- (49) Simplicius In Phys. 615,28-616,3, (S.Sambursky, Concept of ' Place).
- (50) Proclus In Rep. II 201,21-29.
- (51) Simplicius In Phys. 616,4-9, (S.Sambursky, Concept of Place).
- (52) Proclus El.Th. 196, (E.R.Dodds).
- (53) In Tim. II 37,9-14.
- (54) In Tim. II 8,2-3.
- (55) Pl.Th. III 19,3-9.
- (56) In Tim. II 11,27-31.
- (57) In Tim. II 12,3-8.
- (58) In Tim. III 114,6-15.
- (59) In Tim. II 47,16-19.
- (60) El.Phys. Book II Definitions.
- (61) El.Phys. Book I prop. 14.
- (62) Simplicius In Phys. 611,35-612,1, (S.Sambursky, Concept of Place).
- (63) ditto In Phys. 612,16-24, (S.Sambursky, op.cit.).
- (64) ditto In Phys. 613,15-17, (S.Sambursky, op.cit.).
- (65) Proclus In Tim. II 10,4-9.
- (66) In Tim. I 161,9-10.
- (67) Simplicius In Phys. 613,38-614,1, (S.Sambursky, op.cit.).
- (68) ditto In Phys. 612,25-27.
- (69) ditto In Phys. 612,24-35.
- (70) Proclus In Crat. 31,12-14.

- (71) Simplicius In Phys. 613,7-10, (S.Sambursky, op.cit.).
- (72) Syrianus In Metaphysica 85,18-27, (S.Sambursky, op.cit.).
- (73) Simplicius In Phys. 613,21-23, (S.Sambursky, op.cit.).
- (74) Proclus In Rep. II 196,24.
- (75) Simplicius In Phys. 613,27-29, (S.Sambursky, op.cit.).
- (76) Proclus In Tim. III 150,23-28.
- (77) In Tim. III 57,2-6.
- (78) In Tim. III 127,7-11.
- (79) In Tim. I 8,15-20.
- (80) In Tim. II 51,6-15.
- (81) In Tim. III 122,11.
- (82) In Tim. III 122,6-10.
- (83) In Tim. III 142,9-10, 21-22.
- (84) In Tim. III 124,1-5.
- (85) In Tim. III 119,23-30.
- (86) In Tim. III 124,15-18.
- (87) In Tim. III 79,15-19.
- (88) El.Th. prop. 129, (E.R.Dodds).
- (89) El.Th. prop. 64, (E.R.Dodds).
- (90) In Tim. III 120,21-23.
- (91) El.Th. prop. 201, (E.R.Dodds).
- (92) Pl.Th. I 91,27-92,1.
- (93) In Tim. III 115,6-8.
- (94) In Tim. II 42,22-43,31.
- (95) In Tim. III 122,18-20.
- (96) In Tim. II 9,11-14.
- (97) In Tim. III 112,5-6.
- (98) In Tim. II 47,16-17.
- (99) In Tim. III 127,30-128,7.
- (100) In Tim. III 114,1-4.
- (101) In Tim. II 11,25-31.
- (102) In Tim. II 12,7-15.
- (103) In Tim. III 130,13-16.
- (104) In Tim. III 128,18-29.
- (105) In Tim. II 47,9-12.
- (106) In Tim. II 44,12-13.

- (107) In Rep. II 213,24-27.
- (108) In Rep. II 216,5-13.
- (109) In Rep. II 218,5-6, 13-16.
- (110) In Tim. II 47,13-15.
- (111) In Tim. III 128,15-29.
- (112) In Tim. III 129,9-14.
- (113) In Tim. III 131,1-3.
- (114) In Tim. III 58,8-13.
- (115) In Tim. III 62,17-21.
- (116) In Tim. III 151,32-152,2.
- (117) El.Th. prop. 140, (E.R.Dodds).
- (118) In Tim. III 131,10-18.
- (119) In Tim. III 117,11-18.
- (120) In Tim. III 117,20-22.
- (121) El.Th. prop. 199, (E.R.Dodds).
- (122) El.Th. prop. 200, (E.R.Dodds).
- (123) In Tim. III 119,17-23.
- (124) In Tim. III 120,1-8, 13-17.
- (125) In Tim. III 119,23-30.
- (126) In Tim. III 125,4-16.
- (127) In Tim. III 125,27-32.
- (128) Hyp.Astr. 14,17-23.
- (129) Hyp.Astr. 234,7-8, 20-22.
- (130) In Tim. III 147,9-12.
- (131) In Tim. III 127,29-128,13.
- (132) In Tim. III 56,25-31.
- (133) In Tim. III 147,1-7.
- (134) In Tim. III 133,4-10.
- (135) El.Phys. Book II, prop. 4.
- (136) El.Phys. Book II, prop. 5.
- (137) In Tim. III 78,31-79,15.
- (138) In Tim. III 80,7-12.
- (139) In Tim. III 79,28-80,6.
- (140) In Tim. III 122,6-24.
- (141) In Tim. III 82,19-26.
- (142) In Tim. III 53,23-25.

- (143) In Rep. II 220,21-221,11.
- (144) In Tim. III 135,14-20.
- (145) In Tim. III 139,23-28.
- (146) In Tim. III 139,32-140,2.
- (147) In Tim. III 308,15-17.
- (148) In Tim. II 11,28-12,2.

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