The philosophy of Abu' L-Barakat al-Baghdadi with special reference to his concept of time

Dag, Mehmet

The Philosophy of Abū'l-Barakāt al-Baghdādī with special reference to His concept of Time.

by

Mehmet Dag, B.A. (Ankara/TURKEY)

Graduate Society, Durham.

A thesis submitted for the Degree of Doctor of Philosophy, University of Durham.

August, 1970.

ABSTRACT.

- The Philosophy of Abū'l-Barakāt with special reference to His Concept of Time -

Abū'l-Barakāt's philosophy is determined by his critical attitude against the Aristotelian philosophy on one hand and by his appeal to the immediate perceptions of the mind, on the other.

He was born at Balad nearby Baghdād in 465 A.H./1074 A.D. Having studied at Baghdād, towards the end of his life, he became a Muslim either out of wounded pride or out of fear. He classified sciences into the sciences of existing things which include Physics and Metaphysics; and the sciences of mentally related forms, i.e., Psychology; and the science of sciences, i.e. Logic. Space, according to him, is conceived in the mind prior to everything else as tridimensional, and as capable of being full or empty. The prime matter is identical with the corporeal body. In his theory of motion, his originality lies in his explanation of the motion in the void, accelerated motion, and the quies media.

His revolutionary attitude is perhaps best exemplified in his Psychology. According to him, we have an immediate perception of our soul together with existence and time. Every theory which explains soul in terms of faculties or forces is repugnant to him.

In the Metaphysics, Abū'l-Barakāt identifies universals with the mental forms. The forms that exist in the mind of God are the causes of the things existing in external reality. God is the direct existentiating cause of everything.

Existence, which forms one of our primary apperceptions, is superadded to the things that are existent. Existence and existent are identified in God. His conception of God is determined by his human psychology. The difference between God and man is one of degree. He identifies celestial bodies with 'angels'. They are the preserver of the species, guides and instructors.

Avicenna, having eliminated the difficulties inherent in time, held that time is a measure of motion with respect to prior and posterior. He stressed the continuous nature of time. Time, eternal duration, and perpetuity belong to the different domains of the universe. Avicenna, by identifying time with the continuity itself, however, may have prepared the way for the identification of time with duration.

In Hellenistic philosophy, this trend started as a reaction against the Aristotelian view.

In al-Kindī, we find the traces of Abū'l-Barakāt's theory. According to him, the time of a corporeal body is the duration of its existence.

Iranshahrī, and al-Rāzī, under the influence of Galen,

identify time with duration, and divide it into absolute and limited.

This trend culminates in Abū'l-Barakāt's theory of time. He puts time, existence, and soul on the same plane in so far as our primary consciousness of them is concerned. Time, being inseparable from existence, must be defined as the measure or the dimension of existence rather than as that of motion. God, being the existence per se, cannot be beyond time. Time, duration, and perpetuity are all one and the same thing. By discarding these distinctions, he unifies the visible and spiritual worlds. The difference between them is only one of degree, otherwise they are closely related to each other.

ACKNOWLEDGEMENTS

I would like to express my gratitude for his valuable help in the preparation of this Thesis, to Dr. R. W. J. Austin, who kindly undertook the supervision of this work. I also thank the Oriental and University Library staff for their help.

TABLE OF CONTENTS.

	Page No.
Section I. Abū'l-Barakāt and Outlines of His Philosophy.	
Life	1
Outlines of Abū'l-Barakāt's Philosophy	11
I. Classification of Sciences	12
II. Physics	16
a) Space, Vacuum and Infinity	16
b) Matter and Form	37
c) Motion	45
III. Psychology	68
IV. Metaphysics	93
Section II. Time	
Time	135
Difficulties concerning the reality and unreality of time	136
Various Untenable Definitions of Time	141
I. The Aristotelian View of Time	147
a) Time and Motion	147
b) Time as Measure and as Number	149
c) Time and the Now	151
d) The Reality of Time	154
e) The Ultimate Cause of Time	156
f) Things that are in Time	160
g) The Attributes of Time	162
h) Time and Avicenna's Philosophy	164
II. Reactions against the Aristotelian View of Time	166
III. Time as Duration	182
IV. Absolute and Limited Time	193
V. Abū'l-Barakat's Theory of Time	201
a) Is Time connected with Motion	202
b) Time and Existence	211
c) Time, God and Creation	217
d) The Reality of Time	220
e) Time and Abū'l-Barakāt's Philosophy	223
Conclusion	230

SECTION I.

Abū'l-Barakāt and Outlines of His Philosophy.

Life.

Abū'l-Barakāt Hibat Allah b. ʿAlī b. Malkā (or Malkan) al-Baladī: In connection with his birthplace 'Balad' he was called Baladī (i.e. of Balad). But he was generally known under the name of Abū'l-Barakāt al Baghdādī, due to the fact that at an early age he left his birthplace for Baghdād with a purpose of study. He was also called Awḥad al-Zamān (Unique of his time), Faylasūf al-ʿIraqayn and Ṣāḥib al-Muʿtabar. [1]

About the date of his birth as well as of his death, there is a difference of opinion among the biographers; according to Tatimmah ṣiwān al-ḥikmah, he died in (547 A.H./1154). If he lived, as one version asserts, about 90 years, it is possible that he was born about (454 A.H./1062). If we accept the other version, he lived 80 years, so he must have been born in (465 A.H./1074).[2] Shahrazūrī and al-Qiftī are of the opinion that he died about the half of the 6th century Hicra. [3]

---

1. al-Qiftī, Akhbār al-Ḥukamāʾ, (Cairo, 1326H.), p.224; Ibn Abī Uṣaybiʿa, ʿUyūn al-anbāʾ fī ṭabaqāt al-aṭibbāʾ, ed. by Müller, (Cairo, 1882), vol.I, p.278; Bayhaqī, Tatimmah ṣiwān al-ḥikmah, (Lahore, 1351/1932), p.150; Ibn Khallikān, Wafāyāt al-Aʿyān, ed. by Wüstenfeld, 2vols., (Göttingen, 1835-1843), tr. by M. de Slane, (Paris, 1888), vol.III, p.600.
2. Bayhaqī, op.cit., pp.150f.; Shahrazūrī, Nuzhat al-arwāḥ, tr. into Persian under the title of "Kanz al-ḥikmah" by Ḍiyāʾ al-Din Durrī, (Teheran, 1316H.), p.103.
3. Shahrazūrī, op.cit., p.102; Qiftī, op.cit., p.224.

Abū'l-Barakāt studied in Baghdād under a famous physician, Abū'l-Ḥasan Sa'īd b.Hibat Allah al-Isphahānī (d. 495/1102). At first, being a Jew, he had some difficulty in attending to the lectures of this renowned physician, who had a rule against accepting Jews and Christians as students, so he acquired a position as an assistant to Abū'l-Ḥasan's door-keeper to be able to listen to the lectures from the vestibule. He was very attentive to the lectures. One day, a question which had already been studied cropped up, no one was able to answer. Seeing this, Abū'l-Barakāt came up and answered the question. Satisfied with his answer, the renowned teacher broke his rule and accepted him as one of his students. [1] This is the only teacher, we gather from the accounts given by his biographers. From the environment in which he lived we may infer, however, that he had a sound knowledge of Kalām [2] and philosophy.

He served as a physician at the court of the Caliph Mustadī' bi-'amr Allah (d. 566/1170). In the same capacity he also served the Caliph al-Mustanjid billah (d. 555/1160) and al-Mustarshid (d.512/1118). He was consulted by various Seljuq sultans. [3]

1.Uṣaybi'a,op.cit.,pp.278-9;Shahrazūrī,op.cit.,p.103.
2.Ibn Taymiyah,Minhāj al-Sunnah,vol.I,(ed.Misr,1321),p.96.
3.Yaqūt,The Learned Men's Dictionary,vol.VI,bk.7,(London,1926),p.244; Uṣaybi'a,op.cit.,vol.I,p.279;Bayhaqī,op.cit.,p.151.

Late in life he turned Muslim. About his conversion there are given a few versions which are worth noting.

One story of his conversion [1] is that one day he entered the Caliph's presence, although everyone stood up, the Qāḍī al-Quḍāt (The Chief Qaḍī), refrained from doing that. This made a great impact upon him and he accepted Islām.

The second version [2] is that after receiving a great reward for having cured one of the Seljuq sultans, he was lampooned in verse by Ibn Aflah. Then he realized that he could not have success, wealth and happiness in life unless he embraced Islām, which he did on the condition that, contrary to the prevalent laws, his three grown-up Newish daughters would not be deprived of his inheritance.

The third version [3]: During a battle between the Caliph al-Mustarshid (d. 512/1118) and Masʿūd b. Muḥammad b. Malikshah (498-511/1105-1118). he was on the side of the caliph. After the battle he was taken prisoner, and out of fear of being executed, he embraced Islām. If this version is taken as true, then Abū'l-Barakāt's conversion occurred about 18 years before his death.

1.Uṣaybiʿa,op.cit.,vol.I,p.280.
2.Qiftī,op.cit.,pp.224-5.
3.Bayhaqī,op.cit.,p152.

The fourth and last version [1] is that Abū'l-Barakāt was called upon by the Seljuq sultan Maḥmūd (1118-1131) for the treatment of his beloved wife Sanjar. He failed in curing her, and thought that he could only save himself by becoming a Muslim.

According to Bayhaqī, [2] his death also came upon him out of fear; Sultan Muḥammad b. Malikshah (529-547/1134-1152) accused him of failure of his treatment and imprisoned him for some time. By the time Abū'l-Barakāt died, the Sultan was dead too. Bayhaqī relates that Abū'l-Barakāt died in Hamadan and his coffin was taken to Baghdad by a group of people who were going on a pilgrimage to Mecca.

His conversion to Islām annoyed his co-religionists so much that Samuel Schullam described his death, after curing himself of elephanthiasis at the cost of losing his sight, [3] as being God's punishment for disloyalty. [4] These strong attacks were perhaps due to his scoffing at the Jews after his conversion. [5]

During his lifetime, he thought so highly of himself that he even laid claim of having attained to the degree of Aristotle (the first teacher). [6] His arrogance was criticized in a poem by Badīʿ al-

1.Qiftī,op.cit.,pp.226-7.
2.Bayhaqī,op.cit.,p.152.
3.Shahrazūrī,op.cit.,p.102;Uṣaybiʿa,op.cit.,vol.I,p.280;Ibn Khallikān, op.cit.,p.600.
4.M.Steinschneider,Die Arabische Literatur der Juden,(Frankfurt,1902), p.184.
5.Uṣaybiʿa,op.cit.,vol.I,p.280.
6.Bayhaqī,op.cit.,p.151.

Usturlābī (12th Century). "The doctor Abū'l Ḥasan and his imitator Abū'l-Barakāt, stand at opposite extremes, one by his modesty, has reached the pleidas, and the other by his presumption is in the lowest abyss." [1]

His biographers also made mention of the rivalry between Abū'l-Barakāt and his contemporary, Ibn Tilmīḏh, who was a Christian physician at the court of the caliph Mustarshid (1512/1118), together with Abū'l-Barakāt. [2] A poem attributed to Ibn Tilmīḏh is shown by some biographers as a proof of this rivalry. In another context, the same poem is attributed to Ibn Aflah by al-Qiftī. [3]

"There was a Jewish philosopher, whose stupidity when he talks, appears in his mouth. Even the dog is higher in rank than him. He is so conceited that as if he had not yet left the desert." [4]

---

1. Abū'l-Ḥasan al-ṭabib wa muqtafīhi Abū'l-Barakāt fī ṭarafayy naqīḍ. Fa hadhā bi'l-tawāḍuᶜ fī'l-thurayyā wa hadhā bi'l-takabbur fī'l-ḥadīḍ. Ibn Khallikān, op.cit., pp.600-1.
2. Abū'l-Fidā, Kitāb al-Mukhtaṣar, vol.III, (Miṣr, 1323), p.43; Ibn Khallikān, op.cit., p.600; Yaqūt, op.cit., vol.VI, bk.7, p.244.
3. Qiftī, op.cit., p.225.
4. Lanā ṣadīq yahūdiyy ḥamāqatuhu iḏhā takallama tabdū fīhi min fīhi Yatīh wa'l-kalb aᶜlā minhu manzilatan kaᵓannahu baᶜdu yakhruj min al-tīh.

What we gather from the works of his biographers concerning his efficiency in sciences is that he was a prominent physician as well as a philosopher. To bear out his prominence in the art of medicine this story may be cited. [1] The physicians Abū'l-Barakāt had a case of a young man who imagined that he was carrying a large earthenware jar on his head. The patient always avoided low ceilings and walked carefully with his head low, for fear that the jar might fall and break. Abū'l-Barakāt instructed one of his servants to suddenly hit the imaginary jar over the young man's head with a large stick, and another servant to simultaneously drop a big jar behind the patient's back. The trick succeeded very well, and the young man was cured.

His Works.

a) The most important, and the best work of his is called Kitāb al-Muʿtabar, [2] because, as he says in the preface to this book, it

1. Uṣaybiʿa, op.cit., vol.I, p.279.
2. C.Brockelmann, G.A.L. (vol.I, 1898), p.460. Manuscripts of this book can be found in the Khedive Library in Egypt, and in Oxford. There are a few manuscript copies in Istanbul Libraries: Manṭiq, Köprülü Library; Incomplete two copies one of which consists only of 'Ilāhiyyāt' and the other of Ṭabīʿiyyāt and Ilāhiyyāt are in the Fatih Library. The complete copy is found in the Esat Efendi Library. None of them are the first hand manuscripts. Kitāb al-Muʿtabar was published by S.Yaltkaya in Hyderabad in 1938.

includes the results of his personal investigations. In the same place he also explains why he composed this book. The ancients gave their lessons by way of speech and did not commit anything into writing. The reason for this was that they were afraid that it might have fallen into the hands of those who were incapable of knowledge or of those who were not sufficiently instructed for this kind of knowledge. At that time, the scholars and the students were so many in number, and their life-span was so long that they could transfer their knowledge from one place to another in its totality. Therefore almost nothing was lost of what they had taught. But when their number decreased, and their life-span became short and the desire for knowledge extinguished, in order to save their knowledge from falling into oblivion, they started composing books. They used in their books, obscure expressions and hidden remarks, which were only understood by those who were specialized in the ancient sciences. This led to innumerable commentaries by the subsequent writers. Thus, we found ourselves in a position very troublesome to distinguish the true from the false. By carefully studying all the publications I gathered notes on the ancient doctrines and I made my objections. Then my friends insisted that I should put them in a book. With the assistance of my best students, I have succeeded in realizing it. In this book I followed the Aristotelian pattern, and put Mantiq (Logic) first, Tabi^{c}iyyāt (Physics) second, and Ilāhiyyāt (Metaphysics) third. [1]

1. Abū'l-Barakāt al-Baghdādī, K. al-Mu^{c}tabar, (Hyderabad, 1357/1938), vol. I, pp. 1-4.

Abū'l-Barakāt took so much pride in this book that before the end of his life, he made his last request, saying that they (his students) should inscribe on his epitaph the fact that late in life he has been very unhappy because of the illnesses he suffered, and that he was the author of Kitāb al-Muʿtabar. [1]

b) The Risālah fī Sabab Ẓuhūr al-Kawakib laylan wa Khafāʾihā Nahāran (Why the stars are invisible during the day and visible at night). [2] This work, under a slightly different title, was thought to be the work of Ibn Sīnā. [3] According to Ibn Abī Uṣaybiʿa it was written for the Sultan Giyāth al-Dīn Abū Shujaʿ Muḥ. b. Malikshah. [4]

c) Commentary on Ecclesiastes which exists in Hebrew characters, and was translated into Hebrew by Abu Saʿd Isak b. Abraham b. Azra (12th Century), with a panegric on Abū'l-Barakāt. [5]

1.Ş.Yaltkaya,Ilāhiyat,(Istanbul 1932),p.6.
2.B.W.Ahlwardt,Die Handschriften-Verzeichnisse der Königlichen Bibliothek zu Berlin,vol.X,(Berlin,1899),p.385.This tractate was translated by E. Wiedemann in Eders Jahrbuch für Photographie,(1909),pp.49-54.
3.G.C.Anawati,Essai de Bibliographie Avicennienne,(Cairo,1950),no.162.
4.Uṣaybiʿa,op.cit.,vol.I,p.280.
5.Bodl.,no.131.The fragments of it is cited in Pococke's Porta Moses, pp.189-190.The Eulogy which the Oxford manuscript contains is called Natanel,which is the translation of Hibat Allah.

d) Maqālah fī al-Davā', (e) Kitāb al-Aqrabāzīn, (f) Risālah fī al-ʿaql wa māhiyatihi, (g) Amīn al-arwāḥ, (h) Ikhtisār fī tashrīḥ li Calinus (Galen). These last five books [1] have long been extinct.

Among Abū'l-Barakāt's students [2] are Jamāl al-Dīn b. Faḍlan, ʿAlī b. al-Dahhān, ʿAlī b. Yūsif, and Muwaffaq al-Dīn ʿAbd al-Laṭīf, Muhadhdhab b. al-Naqqāsh to whom he dictated his famous book K. al-Muʿtabar, while he was blind.

Since the nineteenth century at the latest, not so much study has been made on Abū'l-Barakāt and his works. Concerning his biography, a section in The Die Arabische literatur der Juden by Steinschneider and M. Zobel's article in The Encyclopedia Judaica can be cited. Leclerc and Pozanski also made mention of him in their books. [3]

---

1. For the list of Abū'l-Barakāt's works see: Uṣaybiʿa, op.cit., vol.I, p.280; Qiftī, op.cit., p.224; Bayhaqī, op.cit., p.151.
2. Uṣaybiʿa, op.cit., vol.I, p.280.
3. Steinschneider, Die Arabische Literatur der Juden, (Frankfurt, 1902), p.184; L.Leclerc, Histoire de la Medicine Arabe, vol.II, (Paris, 1876), p.29; M.Zobel, article in Encyclopedia Judaica, vol.VIII, (Berlin, 1931); Steinschneider, Arabic Literature of the Jews, in Jewish Quarterly Review, (second pub.) vol.XIII, (New York, 1966), pp.93-4; Poznanski, Zeitschrift für Hebraische Bibliographie, (1913), pp.33-36 (edition of some pages of the Commentary on Ecclesiastes).

As for his philosophy, the first account appeared in M. Ismail Hakki's article 'Islāmda Felsefe Cereyanı' [1] Then an incomplete translation of the third section of the Kitāb al-Muʿtabar was made by Ş. Yaltkaya. [2] Since 1938, S. Pines devoted four articles to Abū'l-Barakāt's philosophy. Apart from these, a resumé of Abū'l-Barakāt's philosophy was given by him in the Encyclopedy of Islam. [3] Another Turkish scholar also took interest in Abū'l-Barakāt's philosophy on several occasions. [4] Among these scholars, H. Corbin should also be mentioned. [5] Finally, M. ʿAlī Abū Rayyān's article on the subject is worth noting. 6

1.M.I.Hakki,Darülfünün Ilāhiyat Fakültesi Mecmuasi,(Istanbul,1930),pp.14-24.
2.S.Yaltkaya,Ilâhiyat,Istanbul,1355/1932.
3.S.Pines,article in Archives d'Histoire Doctrinale et Litéraire du Moyen Age,vol.XXI,(Paris,1954);article in Revue des Etudes Juives,vol.III, (janvier-juin),(Paris,1938);and Nouvelles Etudes sur Awḥad al-Zamān Abū'l-Barakāt,(Paris,1953);Encyclopedy of Islam,(New ed.)vol.I,(Leyden, and London,1954),pp.111-113.
4.H.Z.Ülken,La Pansée de l'Islam,(Istanbul,1953);Islam Düşüncesi,(Istanbul, 1946);article in the XX International Congress of Philosophy,(1948).
5.H.Corbin,Hitoire de La Pholosophie Islamique,vol.I,(Paris,1964).
6.M.ʿAlī Abū Rayyān,article in the Bulletin of the Faculty of Arts of the Alexandria University,vols.XII-XIII,(Alexandria,1958-1959).

Outlines of Abū'l-Barakāt's Philosophy.

As we have seen, Abū'l-Barakāt is not a prolific writer compared with the other Muslim Philosophers. This was mainly due to his reluctance to put anything into writing lest they might fall into the hands of unqualified persons, [1] misunderstood and distorted. In fact this happened exactly in the case of The Hanbalite Theologian Ibn Taymiyyah(d. 729/1328) and the Ishraqite philosopher Suhrawardī (al-Maqtūl) (d. 587/1191). The former defended Abū'l-Barakāt because of the closeness of his doctrine to the general tendency of the Ash^{c}arites without taking into consideration his fundamental doctrines which ran against the orthodox view. The latter, in his criticism which may be defined as 'criticism for the sake of criticism' accused Abū'l-Barakāt of sheer ignorance of the philosophical doctrines he criticized. [2] But by others he was given his due. Fakhr al-Dīn Rāzī (d. 606/1209) was greatly indebted to Abū'l-Barakāt in his defence of the orthodox doctrines against the Falāsifa, and Nasīr al-Dīn Tūsī (d. 672/1273) derived great benefit from him. [3]

His influence was confined to a small circle. He was unknown outside his environment. Although a parallelism exists

1.K.al-Mu^{c}tabar,op.cit.,volI,p.1.
2.M.^{c}Alī Abū Rayyān,Naqd Abī'l-Barakāt al-Baghdādī li-Falsafah Ibn Sīnā, article in the Bulletin of the Faculty of Arts of the University of Alexandria,vol.XIII,(Alexandria,1959),pp.20-21.
3.See Sulaymān Nadwī's article at the end of K.al-Mu^{c}tabar; Şerafettin Yaltkaya, ,Ilāhiyat,(Istanbul,1933);S.Pines,article in Revue des Etudes Juives,vols.III-IV,(Paris,1938).

between Abū'l-Barakāt and a Jewish philosopher of the Occident, Crescas (d. 1410), as S. Pines showed in his article,[1] we have no proof that the latter was influenced by the former.

Ibn Taymiyyah relates that Abū'l-Barakāt, in his un-Aristotelian attitude was inspired by the orthodox theologians of Baghdād.[2] However, his philosophy may best be characterized as the revival of pre-Socratic conceptions which lay latent in the works of the previous philosophers, particularly in those of Ibn Sīnā (d. 428/1036) from whom he took up the problems, and whom he, in places followed verbatim.

The XIth and XIIth centuries were dominated by Avicennian philosophy, it was also the beginning of the end of his domination. Avicennian philosophy was attacked from various quarters, the philosophers and theologians alike; Ghazālī (d. 505/1111), Abū'l-Barakāt in the Orient, and Averroes (d. 595/1198) in the Occident. It was the time when a philosophical tradition so influential saw its downfall brought about by the incessant criticisms, and when the philosophico-theological trend began to gain the upper hand.

I. Classification of Sciences

Abū'l-Barakāt's classification of sciences is determined by his epistemology and by his criticisms of the psychological

1. Ibidem.
2. Ibn Taymiyah, Minhāj al-Sunnah, vol. I, (Cairo, 1321/1903), p. 98

doctrines of his time. According to him, science (ᶜilm), apprehension (idrāk) and knowledge (maᶜrifah) are the attributes of relation obtaining between the knower and the known. We, first, know the things existing in external reality and consequently we attain the knowledge of our knowledge depending upon these attributes of relation. In this respect science and knowledge [1] are used equivocally.

In accordance with this division of knowledge into two categories, he divides sciences into (a) the sciences of existing things, and (b) the sciences of mentally related forms. The latter kind of sciences is secondary and derivative with respect to the former. This is analogous to the relation that exists between substances and accidents, causes and effects. [2] In another context he includes among the sciences mentioned above, (c) the science of science, i.e., Logic (Manṭiq), which is the first habitus and natural disposition by which knowledge is acquired. In the sciences of existing things are included the sciences of Metaphysics (ᶜulūm al-ālihiyyah), [4] Physics

1. It appears that science is used by Abū'l-Barakāt in the sense that it is the attribute of relation obtaining between the knower and the external objects known. As for "maᶜrifah" which we have translated as knowledge, it is produced by a higher kind of mental operation by means of which we attain the knowledge of our knowledge.
2. K. al-Muᶜtabar, op.cit., vol.III, pp.1-2; cf. vol.III, p.214, and vol.I, p.225.
3. Ibid., vol.III, p.214.
4. This unusual form used by Abū'l-Barakāt may be due to his intention -which he does not materialise- of dividing Metaphysics inti a) the Science of Being and b) the Science of that which has as its object God and the incorporeal beings. See S. Pines, Nouvelles Etudes sur Awḥad al-Zamān Abū'l-Barakāt, (Paris, 1955), p.11, n.1.

and those pertaining to them: Zoology, Botany, Ethics and Medicine. All these may sometimes be subject to a particular theoretical study (naẓar khāṣṣ). [1]

In his account the divergency between Avicenna and Abū'l-Barakāt is clear. For Avicenna there exist (a) Theoretical and (b) Practical sciences. The theoretical sciences comprise the natural sciences, mathematics and metaphysics,[2] which constitute, according to Abū'l-Barakāt, the divisions of existential sciences. This divergency on their part is due to psychological and metaphysical differences in their systems, as we shall later see.

What of the sciences of the mentally related forms, [3] or the sciences of cognita [4], (al-maʿlūmāt), or the sciences studying the mental representations. [5] (mutaṣawwirāt al-adhhān). In this respect, he has two differing opinions. His division between the sciences of existing objects and the sciences of mentally related forms which is studied in Psychology [6] implies that these two domains are separate. But he deviates from this position and incorporates Psychology into the sciences of that which exists. For, he asserts, our minds confer some kind of existence in the concrete on the mental forms. To our

1. K.al-Muʿtabar, op.cit., vol.III., p.2.
2. Ibid., vol.III., pp.1f.
3. Ibid., vol.III., p.214.
4. Ibid., vol.III., p.8.
5. Ibid., vol.III., p.214.
6. Ibid., vol.III., p.2; cf. vol.III., p.8.

mind, this deviation is due to strong Aristotelian influence on him, despite his struggle against the Aristotelian philosophy of his time. So he does not set himself the task of radically changing the Aristotelian classification of sciences. This is exemplified in his treatment of the problems in the same context as the Aristotelians had already done.

It is absolutely certain that Logic, according to him, is not part of the sciences of existing things. It is only introductory to the existential sciences. We acquire by logic the laws of speculation and the standard of thinking. [1] Here he follows the traditional view which regards Logic as the instrumental science. [2]

Mathematics which is assigned a place between the natural sciences [3] and Metaphysics by Avicenna poses a problem. Should it be considered among the existential sciences or not. For Avicenna, insofar as it has connection with matter, it is related to natural sciences, insofar as it is abstracted from matter, it is related to metaphysics. After citing the traditional view, Abū'l-Barakāt asserts that since the mathematical science studies extensions, configurations and numbers, it is another way of studying that which exists. Therefore, Mathematics is included by him among the sciences of existing things. [4]

1. K. al-Muᶜtabar, op.cit., vol.I, p.4; cf. vol.I, p.226.
2. Ibn.Sīnā, Manṭiq al-Mashriqiyyīn, (Cairo, 1328/1910), pp.6f.
3. Ibn Sīnā, K. al-Shifā', vol.II, (Teheran, 1303/1886), p.1; see also S.Munk, Mélanges de Philosophie Juive et Arabe, (Paris, 1927), pp.356f.
4. K. al-Muᶜtabar, op.cit., vol.III, p.8.

II, Physics

In the Physics, following the Aristotelian pattern, Abū'l-Barakāt treats of Space, Void, Infinity, Motion, Time and various natural phenomena, which was common throughout the Middle Ages.

a) Space, Vacuum and Infinity.

The concept of space, so simple and intelligible in common usage, when we delve into the question, bears complications and contradictions. It is for this reason that the problem of space has been the subject of heated discussions since Antiquity.

In Greek philosophy, we see two lines of thought. One accepted the infinity and absolute existence of space which is generally connected with the ancient names: Leucippus, Democritus and later Epicurus.[1] The other adhered to the notion of empirical and limited space which was laid down by Aristotle and accepted by his followers.

These two notions of space found its echo in the history of Muslim philosophy. al-Kindī, Fārābī, Avicenna and those who followed them joined Aristotle in accepting the limitedness of space. The concept of the infinite and absolute space goes back to such writers as Trānshahrī and Abū Bakr Zakariyyā al- Rāzī.[2] who are said to have taken

1.For Greek Atomists see Cyril Bailey,Greek Atomists and Epicurus,(Oxford, 1928).

2.P.Kraus,Opera Philosophica,vol.I,(Cairo,1939);Max Meyerhof,The Philosophy of the Physician al-Rāzī,in I.C.vol.XII,(Hyderabad,1945),p.56;S.Pines, Some Problems of Islamic Philosophy,in I.C. vol.XI,no.1,(Hyderabad,1937), p.75.

their doctrine from the groups called the Harrāniyyūn or the Sābi'iyyūna.[1]

In the history of Muslim thought, this latter line of thought in particular and the un-Aristotelian doctrines in general, are attributed to Plato and certain ancient Greek thinkers.[2] The attribution of the un-Aristotelian doctrines to Plato was called into question by S. Pines in his article.[3] He is of the opinion that the influence in the case of al-Rāzī may have come from such sources as Galen and Plutarch for the reasons that Rāzī wrote a commentary on one of Plutarch's works, though this commentary is lost, and that of Galen, who is well-known in the Islamic circles, and is known to have criticized Aristotle on several points.

Rāzī admits of five eternal substances, namely the Creator, Soul, Matter, Space and Time. According to him, atoms and the void which permeates them are constitutive of four elements. In other words, the proportion obtaining between the atoms and the void determines the essential qualities of four elements, namely, the lightness and heaviness. Space and time are divided respectively into limited space, and the limited time, which is the number of motion in accordance with the Aristotelian notion of space and time, and into absolute

1.P.Kraus,op.cit.,vol.I,p.191.
2.Max Meyerhof,op.cit.,p.56.
3.S.Pines,Some Problems...op.cit.,p.73;cf.S.Pines,Omne Quod Movetur Necesse est abliquo moveri,A Refutation of Galen by Alexander of Aphrodisias and the Theory of Motion,in Isis,vol.LII,Baltimore,1962).

space and absolute time in which respect they are infinite, and eternal. In the absolute sense, space is tridimensional. Finally, Rāzī does not accept creation by decree (al-ibdāʿ) or out of nothingness, but that it is eternal. [1]

Now, let us revert to Plato. Among the students of Plato, we find two distinct interpretations of his doctrine of space. According to one opinion, Plato identifies space with matter which is also Aristotle's interpretation of Plato. As we shall later see, Abū'l-Barakāt interprets Plato's notion in the way that would conform to his own. As for the other opinion, space as receptacle is distinct from matter, indestructible, immaterial and eternal; it is not known empirically, but by an innate idea of the mind. [2]

If we accept the second interpretation, there is no reason to think that those who attribute the un-Aristotelian attitude of certain Muslim philosophers to Plato were completely wrong, though the latter may have obtained these doctrines from a secondary source.

As for Aristotle's conception of space which had a lasting influence in Muslim philosophy, he tentatively discusses four provisional definitions of space only to discard three of them in the

---

1. P.Kraus, op.cit., pp.252-264, quoted from "Zād al-Musāfirīn" by Nāsir-i Khusraw, ed. by Kaywānī, (1341H.), pp.96-108; see also other parts of "Opera Philosophica".
2. I.Efros, The Problem of Space in Medieval Jewish Philosophy, (New York, 1915), pp.5-14.

course of his discussion. These definitions are: (a) it is the form, or (b) the matter, or (c) some sort of extension between the bounding surfaces of the containing body, or finally, (d) this boundary itself if it contains no extension over and above the bulk of the body which comes to be in it. [1] He does not accept the first three for various reasons on which we shall touch whenever the occasion arises. Therefore, according to him, Abū'l-Barakāt cites without mentioning Aristotle, space (makān) is 'the inferior surface of the containing body contiguous to the exterior surface of the contained, and that from which or towards which the localized object (mutamakkin) moves or in which it is at rest.' [2] This is a relational conception of space which cannot be considered apart from the relations subsisting between the adjoining objects, and which depends upon empirical observations. True space, according to Aristotle, is immovable, otherwise it would signify a space moving in space which is absurd. The true space is the limit of the heavenly sphere in which all things move. [3] This limit being the highest boundary of the Universe leads him into inextricable difficulties.

---

1. Aristotle, Physics, IV, 4, 211b, 7-8; cf. I. Efros, op. cit., pp. 14ff.
2. K. al-Muʿtabar, op. cit., vol. II, p. 43; S. Pines, Études sur Awḥad al-Zamān Abū'l-Barakāt al-Baghdādī, in R.E.J. vol. III, no. 1, (Paris, 1938), p. 6; Aristotle, Physics, IV, 4, 211b.; H.A. Wolfson, Crescas' Critique of Aristotle, (Camb. Mass., 1929), p. 44.
3. Aristotle, Physics, IV, 5, 212b, 8-13; cf. I. Efros, op. cit., p. 16.

Aristotle's definition of space or place is accepted by the Brothers of Purity,[1] Avicenna[2] and is cited by al-Ghazālī[3] in the name of philosophers in his Maqāsid al-Falāsifah.

In contrast to Aristotle's definition of space, Abū'l-Barakāt cites a pre-scientific definition of space, according to which place is the support of the localized object.[4] This pre-scientific conception of space is attributed by Nasīr al-Dīn al-Tūsī[5] to the atomist mutakallimūn who, like Abū'l-Barakāt, accepted the existence of a vacuum which is the sine qua non of motion.[6]

He, further, mentions a third theory to which he will, later, after a long discussion on the existence of void, adhere. Here, his interest lies particularly in the historical aspect of the problem.

---

1. Dieterici, Die Abhandlungen der Ickwān es-Safā, (Leipzig, 1886), p.30.
2. Ibn Sīnā, K.al-Shifā', op.cit., vol.I., p.62; S.M.Afnan, Avicenna: His Life and Works (London, 1958), p.216.
3. al-Ghazāli, Maqāṣid al-Falāsifah, vol.III, (Cairo, 1936), p.13.
4. K.al-Mu'tabar, op.cit., vol.II., p.41.
5. S. Pines, Études... op.cit., p.6., n.15; this definition of space is found in Ibn Sīnā, see K. al-Shifā', op.cit., vol.I., p.51.
6. A History of Muslim Philosophy, ed. by M.M. Sharif, vol.I, (Wiesbaden, 1963), p.239; M. Fakhry, Islamic Occasionalism, (London, 1958) p.28

According to this theory, it is observed that a receptacle may possess successively different contents, as for example in the case of a wine-bottle or of a house, and sometimes remains empty. This observation helps discard the notion of space as superficies, and leads to the notion that space is the whole interior of the receptacle which can be full, or empty. [1] Therefore, according to this opinion, space is the khalā (vacuum) possessing length, breadth and depth, in other words space is a tridimensional extension which contains bodies, the absence of which constitutes the void.

Empty place which is capable of being full is anterior in existence to that which it contains. [2] Abū'l-Barakāt's whole argument against the Aristotelians for the existence of void revolves around the apriori character of our knowledge of the existence of empty space. First two Aristotelian arguments [3] which Abū'l-Barakāt rejects concern the fact that space can not be matter which is defined by Aristotelians as tridimensional.

Aristotelians argue [4] that whatever has tridimensionality can only be a body, therefore to attribute tridimensionality to space is a contradiction in terms.

1.K.al-Muʿtabar,op.cit.,vol.II,p.44.
2.Ibid.,vol.II,p.44.
3.Like Muslim philosophers,the Aristotelian arguments against the existence of a vacuumand the infinity of space was accepted in general by Jewish philosophers.See for the Aristotelian arguments in Jewish philosophy and the striking similarity between Abū'l-Barakāt and Crescas,I.Efros, op.cit.;H.A.Wolfson,Crescas' Critique of Aristotle,(Camb.Mass.1929).
4.Aristotle,Physics,IV,7,214a;Ibn Sīnā,K.al-Shifāʾ,op.cit.,vol.I,pp.51 and 53.

Weakness of this argument lies in Aristotelians' identification of corporeality with tridimensionality. Abū'l-Barakāt is certainly aware of this, and consequently he puts the weight of his argument against this point. According to him, tridimensionality is not the only quality corporeal bodies have, they also have the qualities of softness and solidity. It is these latter qualities that offer more or less resistance, and not the tridimensionality. On the other hand, the syllogism they form is also false. Form the middle term (al-hadd al-awsat), i.e., the body in the syllogism is not one and the same thing. In the conditional proposition, namely, 'if the void exists, it will be a body', they take it to mean something possessing length, depth and breadth, but in the second premise, namely 'but the body cannot be void', they take it to mean something perceived by touch. Therefore the consequence is bound to be false. [1]

Aristotle is not justified in attributing to Plato the view that matter and space are one and the same thing. According to Abū'l-Barakāt's interpretation of Plato, it is true that there exists an identity between space and matter considered as extensions, yet this identity is not in every respect. The difference between matter and space is that the former serves as a substratum to forms and the objects composed of form and matter, whereas space is occupied by the extended localized things, for matter is a constitutive principle for it. [2]

1.K.al-Muʿtabar,op.cit.,vol.II,pp.53f.
2.Ibidem.

This interpretation is certainly in keeping with some of the modern interpretations of Plato.

Similarly, confusing tridimensionality with corporeality, the Aristotelians propound the argument [1] that void, being tridimensional, nothing could penetrate into it, since, according to them, extensity is the sole cause of impenetrability. The commentators (al-Shārihūn) lend strength to this argument by saying that if two extensions can interpenetrate, there is no reason why the entire world would not be contained in a millet seed (Jāwars).[2]

The Aristotelians never think that this argument can be invalidated if the tridimensional extension, namely the void, is considered to be incorporeal. What they insist upon is that whatever has magnitude cannot be incorporeal.

The contrary is the fact whibh Abū'l-Barakāt is going to prove. The geometrical hypothesis that an indefinite number of geometrical points can occupy one and the same place without a dimensional increase when applied on to each other is also, according to him, the case with geometrical lines and surfaces. In this respect.

---

1. Aristotle, Physics, IV.8., 216b; Ibn Sīnā, K. al-Shifā', op. cit., vol.I., p.57.
2. Aristotle and Avicenna use the example of a drop of water which absorbs the whole sea.

there is no differentiating principle between a surface possessing two dimensions and a magnitude having three dimensions, dimensions being interchangeable. They are differentiated only relatively and in the imagination, but not generically or specifically. Hence, the interpenetration of two voids or one void and one plenum is quite permissible. It is only the corporeal bodies that are impenetrable.[1] Then space, being incorporeal, having a tridimensional extension, and offering no resistance, admits of interpenetration.

The Aristotelian arguments from motion has an outstanding place in the criticism of the existence of a vacuum. As we have already seen, Greek atomists and the Mutakallimūn in Islam argue that the existence of a vacuum is the necessary condition of locomotion. But the Aristotelians, because of their belief in the impenetrability of dimensions, explain locomotion in terms of the exchange of places.[2] This argument obviously leaves no room for the existence of a vacuum.

Abū'l-Barakāt finds the Aristotelian argument which asserts the exchange of places as an explanation of locomotion permissible, but not binding. For Aristotelians themselves argue that a thing moves in a medium more rarified than itself. Accordingly, it may be said that the most rarified thing moves in the void. Abū 'l-Barakāt propounds

---

1. K. al-Muʿtabar, op.cit., vol.II., p.56
2. Aristotle, Physics, IV,6,213a, and IV,7,214a.

another argument to the effect that when a bottle is completely filled with water, water does not move in it, but if there is left in the bottle, some air which is more rarefied than water, it moves. [1]

Related to this argument, is the argument from condensation and rarefaction. The proponents of the existence of a vacuum explain this fact by the amount of voids which permeate the particles of a body, whereas the opponents [2] of the existence of vacuum are of the opinion that the principle of condensation and rarefaction is the air which permeates the particles of the body. [3]

The first argument, according to Abū'l-Barakāt, has a slight superiority over the other, because Aristotelians cannot explain the fact of rarefaction in the case of air. [4]

Aristotelians, later, extend their argument from locomotion to all motions, violent or natural, since, according to them, the violent motion is implied in the natural motion. They argue that every unmoving body has a natural place, and after being separated from it by force, it tends to return to it. In the void which has no diversity, there can be no natural places and consequently, no motion. [5]

1.K.al-Muʿtabar,op.cit.,vol.II,pp.57f.
2.i.e.,the Aristotelians.
3.Aristotle,Physics,IV,6,213b and IV,214 b.
4.K.al-Muʿtabar,op.cit.,vol.II,p.58.
5.Aristotle,Physics,IV,8,215a;Avicenna,K.al-Shifāʾ,op.cit.,vol.I,p.59.

Abū'l-Barakāt's argument against this view is sharp and pointed. According to him, the undifferentiated extension is differentiated by the objects which dwell in it. Therefore it is absurd to speak of the non-existence of the natural places and directions in the void. [1]

The various Aristotelian arguments from motion form the backbone of their proof against the possibility of a vacuum. The argument which attracted great attention from the commentators and Muslim philosophers alike concerns the velocity of a motion in the absence of any resistance. According to Aristotle, the time of motion is determined by the tenuity of the medium, the weight of the moving object, and the motive force of this object. [2] In connection with these determinants Aristotle's laws of motion can be formulated as follows: the velocity of a moving object is directly proportional to the motive power and inversely proportional to the resistance of the medium in which movement takes place. [3] In the absence of any resistance the time of a movement would be instantaneous, which is impossible, since every motion must take time.

The first attack, as far as we know, against this conception came from an Alexandrian philosopher and the commentator of Aristotle,

---

1. K.al-Mu'tabar, op.cit., vol.II., pp.59f.
2. Ibid., vol.II., pp.62-63; Aristotle, Physics, IV,8,215a and 215b.
3. A.C. Crombie, Augustine to Galileo, vol.II, (London 1964) p.48; H.A.Wolfson, Crescas' Critique... op.cit., pp.56-57; I.Efros, op.cit., pp.80-81.

John Philoponus, who was to establish that in a void a body would move with a finite velocity characteristic of its gravity, while in air this finite velocity was decreased in proportion to the resistance of the medium.[1] He reached this conclusion by the observation of the celestial bodies, the cause of the uniform motion of which had been left unanswered by Aristotle. Therefore, Philoponus seems to have been the first to show, contrary to Aristotle, that the medium cannot be the cause of motion. In the Muslim Middle Ages, Avicenna[2] held with John Philoponus that in the absence of any obstacle a moving object would have a finite velocity, and showed, contrary to John Philoponus, that this finite velocity would persist for ever. In the Muslim Occident Avempace (Ibn Bājjah) (d. 533/1138) also accepted this theory of a finite velocity in the void and this finite velocity he called the 'original time of motion.' By doing so, he discarded the medium as a determinant of the time of motion. According to him, the original time of motion remains constant and never disappears. It is only true to say that the excess in time of two motions over their time is proportional to the resistance offered by their media.[3]

Abū'l-Barakāt in his argument follows J. Philoponus. Like Philoponus he distinguishes between the two components of the time of

1.A.C.Crombie,op.cit.,p.51;S.Pines,Études... op.cit.,vol.III,no.1,pp.14f.
2.Avicenna,K.al-Shifā',op.cit.,vol.I,p.60; Crombie,op.cit.,vol.II,p.53; S.Pines,Études... op.cit.,pp.15f.
3.S.Pines,Études... op.cit.,pp.17-18;H.A.Wolfson,Crescas' Critique... op. cit.,p.57;Crombie,op.cit.,p.54.

a motion (a) the original part (hissa asliyyah) which is a function of the motive force and the specific qualities of the mobile, (b) the part determined by the resistance of the medium. The time of a movement in the void is equal to the original time of the motion. He cites in support of this theory, the movement of the celestial spheres. [1]

The arguments which we have mentioned above, all depend upon the observations of natural phenomena and speculative reasoning. Apart from these, there is one argument which entirely depends on experiment, where the formation of the experimental science is clearly seen. According to this experiment, when the air is sucked from a bottle and plunged into water, the water would rise in it. There exist two different explanations for this phenomenon. The one is asserted by the partisans of the void. They argue that suction has created in the bottle a void which attracted the water. The other solution is Aristotelian, according to which the amount of air which remained in the bottle assumes a greater volume after the suction. It is in virtue of the tendency of the air to return to its natural state that attracts the water. [2]

Abū'l-Barakāt sides with the partisans of the void, as he usually does. He asks whether the air left in the bottle after the suction increased in dimension, or at the same time in substance (jawhar). The first alternative leads to the admission of the existence of a dimension (miqdār) devoid of all the attributes of corporeity, whereas the

1. K. al-Mu'tabar, op.cit., vol.II, p.63; see for the striking similarity between Crescas and Abū'l-Barakāt, I. Efros, op.cit., pp.81-83; Wolfson, Crescas' Critique... op.cit., p.184. Crescas calls the velocity in a vacuum "fundamental velocity".
2. This argument is found in al-Fārābī, Article on Vacuum, ed. and tr. by Necâti Lûgal and Aydin Sayili, (Ankara, 1951); K. al-Mu'tabar, op.cit., vol.II, pp.64ff.

second alternative bears with itself a difficulty as to whence this quantity of air which was added to that remained in the bottle originates. Furthermore, it is said that the air remained in the bottle after the suction is more rarefied, and consequently it attracts the water. However the fact is that the denser bodies attract the objects which are in similar density, and not that the finer bodies attract the denser ones. Is it that it attracts the water because the air remained in the bottle is in a constrained state? But what has forced the air after the suction to change its volume? It cannot be the fact that it has constrained itself. According to Abū'l-Barakāt, the suction produced a void in the bottle. In contradistinction to the partisans of the void, the force of attraction produced in the bottle is due to the plenum adjoining the void in the bottle.[2]

The Aristotelians, in their argumentation, try to prove the famous maxim that 'Nature abhors a vacuum'.[3] Abū'l-Barakāt, proving the existence of a vacuum or of absolute space, removes this misleading dictum, as wall as the notion of the force of a vacuum.[4]

---

1. K.al-Muʿtabar, op.cit., vol.II., pp.65f.
2. The underlying proposition, as it appears, for this argument, is the dictum that "like attracts the like".
3. I. Efros., op.cit., p.74.
4. This notion is accepted by J. Philoponus. See S.Pines, Etudes... op.cit., p.22., n.83

According to him, even if the tridimensional space does not exist in reality (fī'l-aᶜyān) we are still aware of its existence in the imagination and in the mind, abstracted from all corporeal bodies. In fact, our knowledge of it is a priori (maftūran). The process of abstraction by which we arrive at the conception of an absolute space is similar to that we conceive of humanity as devoid of individual attributes, even though humanity cannot be separated from these attributes. For Abū'l-Barakāt, this is the opinion of the common people and the élite alike. [1] He does not disdain the opinion of the ordinary people, as has generally been done by the generality of the Muslim philosophers. In fact, he generally makes it the basis of his discussions.

Another point which distinguishes him from other Muslim philosophers is that he finds no reason not to rely on the data acquired by the estimative faculty (quwwah mutaṣawwirah), insofar as these data are perceived primarily. This is certainly unacceptable to many Aristotelians. [2] Indeed, Abū'l-Barakāt, as we shall later see, does not divide the human soul into numerous faculties, as was done by the Aristotelians.

One of the most perplexing questions of philosophy is the

1. K. al-Muᶜtabar, op.cit., vol.II, pp.67-68; the relevant passage was translated by S.Pines into French in Nouvelles Études..., op.cit., pp.16-17.
2. See on Wahm, Wolfson, The Internal Senses in Latin, Arabic, and Hebrew Philosophical texts, in Harvard Theological Review, (April, 1935), pp.86f. and 107f.; S.Pines, Nouvelles Études..., op.cit., pp.47-50.

infinity of space which rightly formed one of the antinomias of I. Kant. Aristotle admits of the infinity [1] of time and motion, particularly the circular motion on which time depends. Matter is limited by the surfaces, and therefore finite. The difficulty in Aristotle's conception of the infinite lies in the fact that it is conceived as a process and a succession which is exemplified by his notion of potentiality and actuality, and that he does not apply the same process to space, namely, the successiveness of the parts of space. This difficulty was inherited by Muslim and Jewish philosophers in general.

The first reactions in Muslim philosophy against the Aristotelian finite space came from Iranshahrī and Abū Bakr Zakariyā al-Rāzī. Both accepted the infinity of space and made it the basis of eternal creation. According to al-Rāzī, the learned people appeal in establishing the existence of space and time to ordinary people who maintain them as self-evident (badīhī), and according to whom our minds conceive that outside this world exists an extension (imtidād).[2] This appeal to ordinary people is considered by Nāsir-i-Khusraw, to

1. Aristotle's argument on Infinity is found in the third book of his Physics; cf. I. Efros, op. cit., pp. 88-91.
2. P. Kraus, op. cit., p. 264, quoted from Zād al-Musāfirīn, op. cit., p. 108.

whom we owe this information, as a weakness on the part of al-Rāzī. It is the very method of al-Rāzī that Abū'l-Barakāt uses. Certain people, according to him, assert that the infinity of plenum and void, and, in general, of the extended dimension (al-Buᶜd al-imtidādī), is one of the a priori judgements of the mind (awwaliyyāt al-ᶜaqliyyah), because our minds (al-adhhān) cannot conceive of a termination (nihāyah) in space. [1] This way of reasoning, as we have mentioned, is utterly unacceptable to the Aristotelians, for whom the estimative faculty is the source of all errors. They only rely on the judgements of the intellect which proves the finitude of space. Here are the Aristotelian arguments contrasted with those of Abū'l-Barakāt:

Aristotelians argue: Let us prolong a line to infinity from a given point (A), so that the line (b) is finite on one side and infinite on the other.

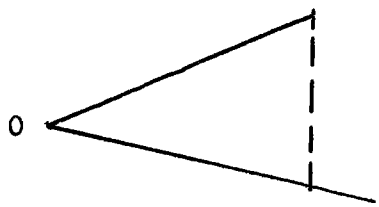
Then let us take a part of this line, again finite on one side, and infinite on the other. Let the initial point of this line be (B). If we apply the initial points of these two lines to each other, does the entire line exceed the partial line in length. If we answer in the negative, then the partial line must be equal to the entire line, which

1.K.al-Muᶜtabar,op.cit.,vol.II,p.84.

is absurd. But if the entire line is longer than the partial line, then the entire line must exceed it by a finite distance. If we add the distance between the points (AB) to the partial line, can we get the length of the entire line which is infinite? To answer this question in the affirmative is absurd in view of the fact that finite distance when added to a line can only give finite result.[1]

According to Abū'l-Barakāt, the partial line can be applied to the entire line only if the former is shifted from the infinite. But such a removal of an infinite line cannot be imagined unless it has a terminating point, consequently finite. Since the partial line is infinite, its application to the entire line is excluded. Therefore, the Aristotelian argument is untenable.[2]

Aristotelians argue: Let us suppose two lines formed an angle at (O) and extend



the lines infinitely, then the distance between the two lines must also increase infinitely. Yet the interval between these two lines is limited by them, and insofar as it is limited, it cannot be infinite.[3]

1.K.al-Muʿtabar,op.cit.,vol.II,p.85;Ibn Sīnā,K.al-Shifāʾ,op.cit.,p.99.
2.K.al-Muʿtabar,op.cit.,vol.II,p.85.
3.Ibid.,vol.II,pp.85-86.

According to Abū'l-Barakāt, the infinitely extended lines in the above argument are not actually infinite. They, in fact, try to establish that a line can be indefinitely extended. It is true, two lines may be extended indefinitely and in accordance with them, the distance between them may extend. But this is not the true interpretation of the doctrine of spatial infinity. What Abū'l-Barakāt means here is that by a successive synthesis of finite lines we can never reach the infinity. To whatever point we wish to extend both lines, they are infinitely finite (fa huwa mutanāhin lā yatanāhī) [1]

This difficulty was first felt by Avicenna whom Abū'l-Barakāt follows here. Avicenna says that it is the same with number, namely that there is no end to the process of adding and consequently the infinity can never be reached. [2]

Aristotelians argue: Let us suppose a circle in space and prolong its radius ad infinitum, and parallel to this radius draw a line outside the circle equally infinite. Now, if the circle executes a circular movement, the radius will intersect the line outside the circle at various points. But since the lines are infinite, they contain infinite number of points, and an infinite distance can not be traversed in a finite time. Consequently a circular motion in an infin-

1.Ibidem.
2.Ibn Sīnā,K.al-Shifā',op.cit.,vol.I,p.101.

ite space is impossible. [1]

According to Abū'l-Barakāt, the contact and non-parallelism of two lines does not exist by itself; they exist only insofar as it is determined by observation or in the imagination. Observation or the supposition of the contact is possible only if two lines are definite, i.e., finite. The notion of contact which imply an end is inapplicable as far as the infinite lines are concerned. Furthermore, motion is conditioned by six factors: (a) the mover, (b) the moving object, (c) the starting point, (d) the terminating point, (e) time and (f) the medium. The medium is the distance traversed by the radius. Whether there exists a line non-parallel to the radius or parallel to it, whether the space in which the radius moves is finite or infinite, the motion would not be affected by it. [2] To think that the circular motion is rendered impossible because the two lines intersect at an infinitely distant point is to attribute to these two purely imaginary lines, an immobilizing force similar to that possessed by two iron or wooden arrows. [3]

---

1. K. al-Muʿtabar, op. cit., vol. II, pp. 60-61 and 86; Ibn Sīnā, K. al-Shifāʾ, op. cit., vol. I, p. 57.
2. K. al-Muʿtabar, op. cit., vol. II, pp. 61-62.
3. Ibid., vol. II, p. 86.

Apart from the a priori character of our knowledge of infinite space, Abū'l-Barakāt adduces another argument which, he thinks, is more convincing than those of the Aristotelians. He argues: Supposing that an arrow, having traversed all the celestial spheres, attained the highest limit which, according to Aristotelians, is the limit of space beyond which there is neither void nor plenum. Can the arrow proceed further? There are two alternative answers, none of which is favourable to the Aristotelian finite space. It can either go further because it meets a void, or it cannot, because it meets a body which offers resistance to it. [1]

Similar arguments are found in Antiquity and in the Maqālah fī mā baᶜd al-Tabīᶜa attributed to Abū Bakr Zakariyyā al-Rāzī in which he gives an historical account of the philosophical views on various points. One view is attributed to Seleucus who asks a similar question and reaches the same conclusion. [2]

The Aristotelian objection that this argument pertains to the estimativefaculty serves, according to Abū'l-Barakāt, no purpose. There is found no argument that can invalidate our a priori judgement that there exists an infinite empty or full extension. [3]

Substantially, Abū'l-Barakāt shares his views with al-Rāzī

1. K.al-Muᶜtabar, op.cit., vol.II., p.87
2. P. Kraus, op.cit., p.133; see also S.Pines, Études..., op.cit. p.29, n.107.
3. K. al-Muᶜtabar, op.cit., vol.II., p.87

al-mutabaddilah) and various accidents with respect to generation and corruption, change and transformation. Abode, taken individually in relation to what inheres in it, just as body when taken in relation to whiteness, is called substratum, and when taken in relation to what is acquired from both is called matter or hylē, as, e.g., a white object. Wheat is the matter for flour, flour is the matter for dough, and dough for bread. From this it can be inferred that there exists in the world a hierarchy with regard to the products of the objects. In the hierarchy the lower serves as the matter for the higher. Therefore he divides matter into proximate and remote, or primary and secondary. In the scale of existence, by going down, we reach the first matters (elements), namely, earth, water, air and fire. (Fa yakūn hadhihi hiyā al-hayūlāt al-awwal aʿnī al-ʾarḍ wa'l-māʾ wa'l-hawā wa'l-nār). These four elements also undergo a reciprocal transmutation, for example, water becomes air, and air water. In all these reciprocal transmutations, the underlying primary substance (al-ḥāmil al-awwal) remains the same. Change requires a body having dimensions (al-aqṭār). It is through these dimensions that water can become ice (al-thalj), an intense solid and cold body, and which, in the same way, can warm up, be rarified and consequently turn into a fluid water, and which, by further warming up and rarefaction, can become air. Generation, corruption (al-kawn wa'l -fasād), and transition which we find in existing objects, is self-evident. Men, animals, plants, minerals, and the four basic elements, all participate in the concept of corporeality (maʿnā al-jismīyyah),

generation, corruption and transition. Earth, water, air and fire have also in common with the spheres and stars corporeality which has dimensions capable of measurement. Corporeal body is then the Prime Matter and the Prime Substratum for all existents which are perceived by the senses. It is named Prime Matter with regard to transitory beings which are derived from it, and substratum in relation to various states from which it obtains permanence (al-qārrah) and changeability.[1]

The way in which the subject is treated is, without doubt, Aristotelian but the result reached by Abū'l-Barakāt is fundamentally different. Aristotelian argument from the phenomenon of the reciprocal transmutation of the elements, and the historical development in Islamic Philosophy may be summed up as follows:

The process of transmutation, that is air becoming water and water becoming air, etc., cannot be merely the alteration of one thing into another, for the elements represent opposites, and nothing can become its opposite unless it is first completely destroyed. But when one thing is destroyed, it can no longer give rise to another thing, for from nothing, nothing can be generated. It is therefore necessary to assume the existence of a certain substratum common to all the four elements in which the transmutation takes place. That substratum is matter and the four elements are the four different forms which the matter assumes. Thus every one of the four natural elements is composed of matter and form.[2]

1. K. al-Muʿtabar, op.cit., pp.10ff.
2. Aristotle, Physics, I; Metaphysics, XII, 2-4; al-Ghazālī, op.cit., vol.ii, p.86; for Ikhwān al-Ṣafā see S.H. Nasr, An Introduction to Islamic Cosmological doctrines, (Camb.Mass.1964), pp.58f.

The matter underlying the four elements is known as 'absolute body' and the four forms which it assumes are variously known as the 'elementary', 'natural', 'proper', 'specific' or 'essential' forms. This underlying and proximate matter of the four elements is not formless. So it was supposed to have another matter, known as Prime Matter, and another form, known as 'Corporeal form' (al-Ṣūrat al-jismīyyah).[1] In Plotinus[2] as well as in the Ikhwān al-Ṣafā this corporeal form is called quantity.

Aristotle himself is vague in his treatment of the subject, and makes no reference to 'corporeal form'. He left unexplained the nature of the Prime Matter and the common matter of the four elements. Simplicius in his commentary on the Physics, mentions a contradiction in Aristotle's conception of matter. He is of the opinion that if Aristotle's proof for the existence of matter from the transmutation of the four elements is accepted, it would lead to the belief that matter is corporeal and extended. But he also finds the contradictory statement that matter is not body and has no magnitude. According to Simplicius, 'Body is defined by three intervals, but matter is perfectly indefinite'[3] and between the matter immediately underlying the four

---

1. Dieterici, Die Abhandlungen der Ichwān el-Safā (Leipzig,1886),p.25. S.Naṣr, op.cit., pp.58ff.,; Avicenna,al-Najāh, (Cairo,1938), pp.201ff.
2. Plotinus, Enneads, II,4,9.
3. H.A. Wolfson, Crescas' Critique....,op.cit., pp.581-582.

elements and the First Matter there is a corporeal form.

In Muslim philosophy, this sense of the corporeal form is generally accepted. According to Avicenna and as to others Prime Matter is inextended and has no magnitude. But they differ as to the nature of the corporeal form. Avicenna argues: Matter itself has a disposition to receive corporeal dimensions. This predisposition and not the dimensions, is the corporeal form. The dimensions are added to matter as accidents. Avicenna believes that the corporeal form is not identical with cohesion (ittiṣāl = continuity) nor is it something to whose nature cohesion is essentially necessary. If the corporeal form is identical with cohesion, then body will have to remain coherent even after it has become divided. It follows, therefore, that there is undoubtedly something that has a potentiality for both cohesion and division, namely, matter. Hence cohesion itself qua cohesion is not the recipient of division. Rather it is that which is a recipient of cohesion that is also the recipient of division, namely, matter, in as much as the recipient must remain with that which is received. Nor can the recipient be something to whose nature cohesion is essentially necessary, in as much as that cohesion may pass away. On the other hand, the corporeal form has no existence apart from matter which is a substance, being the first abode in which other things exist and itself does not exist in anything else. [1]

1.Avicenna,al-Najāh,op.cit.,pp.201ff.; Horten,Die Metaphysik Avicennas, (1909),p.101;P.Duhem,Le System du Monde,vol.IV,(Paris,1917),pp.541f..

For Al-Ghazālī, Matter has no corporeality. Here he follows Avicenna and others. As to the nature of the corporeal form he differs from Avicenna in that the corporeal form is not a mere predisposition. It is identical with cohesion itself. On the other hand, he agrees with Avicenna that the dimensions are mere accidents.

Averroes is in complete disagreement with both Avicenna and al-Ghazālī. The corporeal form to him is neither a predisposition for the cohesion of the three dimensions nor the cohesion itself. It is rather identical with the dimensions, not indeed the definite changeable dimensions which constitute the quantity of an object, but absolute dimensionality as such, indeterminate and unlimited. [1]

Abū'l-Barakāt's Prime Matter as the corporeal body conforms entirely to Averroes' matter with the corporeal form, which is identical with indeterminate and unlimited dimensions, having integrated into it. Abū'l-Barakāt says, it has been asserted that the Prime Matter is not corporeal and that it has no extension. The corporeal body as the Prime Matter has a relative extension. He means by relative extension only the negation (salb) of the notion of extension which is itself capable of division both in imagination and in reality.[2]

1.Duhem,op.cit.,volIV,pp.541f.
2.K.al-Muʿtabar,op.cit.,vol.II,p.12.

Here, it may be asked: if the Prime Matter is identical with the corporeal body possessing three-dimensions, what is the difference between this and the empty space which also has three dimensions? His answer to this question is very brief: the difference is mainly due to the degree of resistance they offer. The empty space having no resistance is something like a non-entity (kalā shayʾ), it is absolute privation (al-khalā maḥḍ). To those who argue that the privation or the non-entity cannot be measured (lā yataqaddaru), whereas empty space can be measured, it can be said that measurement or quantity is not something inhering in the essence of that which is measured (maqdūr), but it is only a mentally conceived relation (iʿtibār dhihnī). Plenum (al-malʾ) can be represented in the mind as surrounded by an empty space (al-khalā) essentially, but an empty space inside the plenum can only be regarded as accidental. Empty space always has the potentiality of being full. [1]

We can, now, revert to our subject. This corporeal body or the prime matter possesses a predisposition to receive forms of existent objects. By disintegrating a composite body we reach the basic elements which are called (ʾustuquṣāt). By an inverse process we arrive at the composite objects, the composition itself is also called element (ʿunṣur). The corporeal body is the real element of everything. [2]

1.K.al-Muʿtabar,op.cit.,vol.III,p.209.
2.Ibid.,vol.II,pp.13ff.

Natural objects are divided, with respect to their existence, into entities having permanent existence and the activities proceeding from them. That from which the activities proceed is called agent (fā^{c}il), and that in which the agent inheres is called recipient (qābil). Recipient is the abode or matter, or the subject for the existence of what exists in it. Some of those that come into the subject by means of an agent are called form. It is through form that something is, for example, humanity of men, and the squareness of a square, and some are called accident, for example, whiteness of a man and the heat of the fire. Form is equivocally attributed to both form and accident. Form is the cause of the actual existence of objects.

Activities proceeding from natural objects also play an important role in distinguishing the true form of an object. According to Abū'l-Barakāt, the true form of an object is that from which a certain act proceeds primarily, for example, heat burns. Therefore heat is the true form of the fire, and its rarity being consequent upon it.

In this connection, Abū'l-Barakāt treats of the end and privation. First the end. According to him, it is the agent that creates the form in matter, for the cause exists in the mind of the agent, and through this cause he does what he wills. For example, the end perceived in the mind of a carpenter acts as the form of a bed-stead (al-Sarīr). It is through this form that the end is achieved in reality.

This end is the cause of the causality of the agent (ᶜillah ᶜillīyyat al-Fāᶜil) and the agent is the cause of its existence. It sometimes so happens that form may become the agent, for example, heat of the fire turns a piece of wood into fire. Here form and the end coincides.

The existence of privation (al-ᶜadam), and its being a cause is accidental, because it is the condition for temporal events before they existed. It can have an existential meaning, not in so far as it is non-existent, but in so far as it is inclined to reach corporeality. Privation belongs to the attributes and the accompaniments of matter, and is included among the causes only in the mind, not in reality. [1]

c) Motion.

For Abū'l-Barakāt, motion is the most universal accident of natural objects. There are four categories of motion: (a) The Local Motion (al-ḥarakat al-makānīyyah), (b) The Rotatory Motion (al-ḥarakat al-waḍᶜiyyah), (c) The Quantitative Motion, i.e. motion of growth and diminition, (d) Transition or the Qualitative Motion. In differentiating between the Local and Rotatory motions he follows the lead of Ibn Sīnā. [2]

1.K.al-Muᶜtabar,op.cit.,vol.II,pp.15-18.
2.Ibid.,vol.II,p.28;S.M.Afnan,Avicenna:His Life and Works,(London,1955) p.210;Ibn Sīnā,al-Najāh,op.cit.,pp.105f.

Motion is defined by Aristotle in terms of its substratum as the actuality of that which is movable in so far as it is movable and in terms of its form as the actuality of that which is in potentiality in so far as it is in potentiality. [1]

Having a mind for strict classifications and definitions Avicenna opts for the second definition which has several variants in his books. Motion is the gradual passing from potentiality to actuality in time. [2] It is the first entelechy of that which is in potentiality in so far as it is in potentiality. Motion is the first entelechy of that which is in potentiality and the gradual actualization of that which is in potentiality. [3]

When motion is in the process of actualization it is really called motion. This process occurs between the initial state which Avicenna calls 'pure potentiality' and the final state which he calls pure actuality, neither of which being motion.

Only the definition which includes time as an outstanding element can suit Abū'l-Barakāt's purpose. So he accepts the definition that motion is the gradual actualization, in time, of that which is in

1.Aristotle,Physics,III,1,201a,10-11.
2.Ibn Sīnā,Funūn-e samāʿ-e ṭabīʿī az ketāb-e shifāʾ,tr.into Persian by M.A.Furūghī,(Teheran,1940),p.132;Risālah fī'l-ḥudūd,(Istanbul,1298H.) p.63.
3.Risālah fī'l-ḥudūd,op.cit.,p.63;Aristotle,Physics,III,1,201a,10-11.

potency. According to him motion can only be conceived in time, as he will make clear when he is dealing with the concept of time. However, this definition is necessary for the distinction between 'motion in time' and 'timeless change'. He calls the instantaneous or the timeless change absolute change or absolute actualization. [1] Timeless change occurs in all the ten categories. But the motion in time is only found in categories of place, quality, quantity and position. [2]

Now, he asks 'does motion exist?' considering the fact that motion is made up of a series of contacts and absence of contacts, the former implying rest and the latter non-existence (ʿadam). He argues, it is only when we unite this process in our minds can we have the existence of motion. It is a constantly changing process. [3]

Motion is conditioned by (a) Mover, (b) Mobile, (c) Initial point, (d) Final point, (e) Medium, (f) Time. [4] Passage in time is most essential to every motion, whereas the initial and final points and the medium are the necessary concomitants (lawāzim) of motion. In the case of rotatory motion there is no initial and final points. [5]

1. The distinction between motion and timeless change is found in Avicenna though Aristotle is not clear on this point.
2. K. al-Muʿtabar, op.cit., vol.II, pp.29f.
3. Ibid., vol.II, pp.30f.
4. Ibid., vol.II, p.33.
5. Ibid., vol.II, pp.37f.

Every mobile body must have a mover which must be distinct from the mobile. Motion depends upon two causes: (a) the material cause which is the mobile body itself, and (b) the efficient cause (ʿillah al-fāʿiliyyah) which causes motion to exist and not to exist. If it existed through the essence of the mobile, it would never cease to exist, which is incompatible with the nature of motion.[1]

This theory sets the foundation of Aristotle's 'Unmovable Mover' (Muḥarrik lā-yataḥarrak).[2]

Natural objects may be classified into those which have the principle of motion in themselves or outside themselves. Those which have the principle of motion in themselves move either by reason of nature (ṭabʿ) or by reason of will (irādah). Downward motion of a stone and upward motion of fire falls under the category of motion by nature. Celestial objects and mankind move by will. Those which have the principle of motion outside themselves move by force. Nature is not only the principle of motion of natural bodies but also that of rest. Every natural body moves by nature towards its natural place where it remains at rest unless it is removed from it by force. Its movement is in a straight line which is the shortest way to its natural place. Like Aristotle, he also divides motion into (a) Motion according

1.Ibid.,vol.II,pp.34f.
2.Ibid.,vol.II,p.116.

to its essence, (b) accidental motion (c) Naturally accidental motion, and (d) Motion according to part. For the first, the motion of the heavens which moves as a whole; for the second, the motion of the passengers in a ship by the movement of the ship; for the third a nail in a ship which moves accidentally by the motion of the ship, but through its function it moves by itself, and for the fourth, the motion of the hand in the act of writing may be given as examples. [1]

Among the categories of motion, the local, rotatory, and circular motions are prior by nature to all the other categories of motion. The circular motion, in turn, is prior to the local and rotatory motions, being most perfect among all the other categories of motions. Its perfection depends upon its being governed by continuous and persisting will and is evidenced by its equable (lā yakhtalif) and stable motion. [2]

That the circular motion is different from the 'motion in place' is not accepted by Averroes (Ibn Rushd). He maintained that the

---

1. Ibid., vol.II, pp.103ff. Aristotle has a slightly different classification: a) the essential motion, i.e., the translation of a body as a whole from one place to another, b) the accidental motion, which is subdivided into the motion of some accident of a body by reason of the motion of the body itself, and the motion of part of the body by reason of the motion of the whole body. See Wolfson, Crescas' Critique.., op.cit., p.76; Aristotle, V,2,226a,19ff.; IV,4,211a,17ff.; VIII,4,254b,7ff.
2. K. al-Muʿtabar, op.cit., vol.II, pp.103f., and 105; Aristotle, Physics, VIII,9, 265a,16-23.

circular motion must be classified as locomotion. He also rejects the theory that the nature or form is the principle of motions of natural bodies. He argues that the nature or form being not distinct from the matter of the substance, is the act of the matter and cannot act on its own matter. According to strict Aristotelian doctrine which Averroes follows, the mover must be distinct from the mobile but in contact with it. It is in this way that the continuance of every motion is possible.[1] It is easy for Aristotelians to find in nature examples verifying this statement in so far as the voluntary accidental, natural and certain violent motions caused by push and by traction is concerned. But what of the violent motions which are separated from their movers? Aristotle tries to answer this difficulty. He says, the hand which throws a stone imparts not only a violent motion to the stone, but also a motive force to the medium which sustains the motion of the stone.[2]

This theory endows the air with the power to stay in motion, though it denies the same power to the projectile under similar circumstances. This inherent contradiction was unsuccessfully explained away by Aristotle's commentators, Alexander of Aphrodisias, Simplicius, and

1.E.A.Moody,Galileo and Avempace,in Journal of the History of Ideas, vol.XII,(1951),p.378;Wolfson,op.cit.,p.535;S.Pines,A refutation of Galen,in Isis,vol.LII,(1962),p.40.
2.Aristotle,Physics,VIII,10,267a;P.Duhem,op.cit.,vol.I,p.376.

Themistius who argue that this power is analagous to the power imparted by the fire to water which, having been heated, not only preserves the heat, but is also capable of transmitting it to other bodies.

Another theory which is Plato's is called the theory of antiperistasis [2] according to which the cause of the projectile motion is the circulation of the disturbed air in front to the rear part of the projectile.[3] According to another interpretation, the projectile pushes the air in front and this impulse is transmitted to the next layer of air and so on, thus sustaining the motion of the projectile.

The above theories which find in the air the cause for the continuance of the motion of the projectile are rejected by John Philoponus. He asks: if the cause of the projectile motion is the air, why must the hand touch the stone or the arrow be fitted to the bow? Why does not violent beating of the air move the stone? Why can a heavy stone be thrown further than a very light one? Why do two bodies have to collide to be deflected and not simply pass close to each other through the air? [4]

1.P.Duhem,op.cit.,vol.I,p.376.
2.Plato,Timaeus,79b;Taylor,Commentary on Plato's Tim.,(Oxford,1928),pp.558f.; Aristotle,Phys.,IV,8,215a;VIII,10,267a.
3.K.al-Muʿtabar,op.cit.,vol.II,p.112;Crombie,op.cit.,vol.II,p.50;S.Pines, Études..,op.cit.,vol.III,no.1,p.41.
4.Crombie,op.cit.,vol.II,pp.51-52;Duhem,op.cit.,volI,pp.350-371.

Philoponus' own theory which will later be accepted by the majority of Muslim philosophers after Avicenna is that the mover communicates to the projectile a certain incorporeal motive force which enables it to continue its motion. This motive force is decreased by the resistance of the medium and the natural inclination of the body, finally, the violent motion of the projectile comes to an end. This theory eliminates the air as the cause of motion. In the Occident Avempace and his disciple al-Bitrūjī was the follower of this doctrine which is closely linked with the possibility of motion in the void. As we have already seen, this motion in the void comes to an end as soon as the motive force is exhausted. [1]

Many of the arguments concerning projectile motion found in Avicenna are mentioned by Abū'l-Barakāt, except that he makes radical changes wherever he thinks necessary. The argument that air receives an impulse from the mover at the same time as the projectile with one difference, that air moves faster than the projectile and carries it along is rendered null by Avicenna's argument that the faculty to continue denied to the projectile must likewise be denied to air, and that if the air moves faster than the projectile in order to sustain the motion, the air will have to plunge into a wall more deeply than an arrow. [2]

1. Duhem, op.cit., Vol.I., pp.350-371; S. Pines, Études..., op.cit., vol.iii., no.1. pp.41-42; for Avempace, see Moody, op.cit.pp.185-186.
2. Avicenna, K.al-Shifā', Furūghi's translation, op.cit., pp.524ff.

In the Muslim World a theory which is quite near to the theory of mayl (inclination) makes its appearance probably for the first time in Kalām. According to this theory, Avicenna says, it is in the nature (ṭabᶜ) of motion to engender another motion after it and similarly it is in the nature of the iᶜtimād (intention) to engender another iᶜtimād. The Mutakallimūn, (particularly the Muᶜtazilites) does not regard as impossible a steady movement being broken by the moments of rest.

This atomic theory of motion is refuted by Avicenna. According to him, if motion were composed of indivisible units of motion, there could not be one movement more rapid than another unless one had less and the other more units of rest intervening in between. But this could not conceivably be the case, because motion is continuous; and if one is rapid and the other slow, it is because of the very nature of the motion and not of intervening units of rest.[1]

1. Avicenna, K. al-Shifāʾ, Furūghi's translation, op. cit., p. 525. The Mutakallimūn believed that, like time and space, motion is constituted by discrete atoms of motion having a duration of an instant. In view of this, they explained the difference of the velocity between two motions by arguing that two objects traverse different lengths of space in the same time-interval because the motion of the slower object was interrupted by fewer moments of rest. So they declaired that no velocity is greater than another. Cf. al-Ashᶜarī, Maqālāt al-Islāmiyyīn, ed. by H. Ritter, (Istanbul, 1929-1930); Ibn Ḥazm, Kitāb al-Fiṣāl, vol. V, (Cairo), p. 107; Maimonides, Guide for the Perplexed, tr. by S. Pines, (Chicago, 1963), ch. 73. Atomic theory of the Mutakallimūn is in keeping with their denial of the principle of causality and free-will. When, for instance, a man is said to move a pen

Continuation of Ref. No.1 from page No.54.

such movement is not really the result of his willing or action,but rather the the result of the direct intervention of God,who creates four successive accidents simultaneously with the event,laeding up to the movement of the pen.The first of these accidents is the will to move the pen;the second is the power to move it;the third is the movement of the hand,and finally the actual movement of the pen.Those four accidents are not causally related to one another but only concomitantly.Cf.Guide,op.cit.;Ghazālī,al-Iqtisād fī'l-Iᶜtiqād,(Egypt),pp.100 and 45;Tahāfut al-Falāsifah,ed.by Bouyges, (Beirut,1927),pp.237 and 279.The Muᶜtazilites were anathemized by the Ashᶜarites,because of their theory of "iᶜtimād" which established to a certain certain extent a causal link between two atoms of motion.

In his explanation of the projectile motion, Avicenna follows John Philoponus. Avicenna believes that the mobile borrows (istafāda) from the mover an inclination which brings about the continuance of the violent motion.[1]

Avicenna defines Mayl as the entity (al-maʿnā) which is perceived by the senses in the body in motion. It is perceptible by its resistance and by the effort it exerts in order to move itself. It is a quality given to the projectile as heat is given to water by fire.[2] Mayl differs from motion in that the former exists even in the state of rest. For this, Abū'l-Barakāt cites the example of a link drawn in opposite directions by two equal forces, in which case it would remain immobile.[3] Mayl is also different from the motive force. While the latter continues to exist after the completion (itmām) of the movement, the former does not.

There are three categories of mayl: (a) Mayl nafsānī (Psychical inclination), (b) Mayl ṭabīʿī (natural inclination), (c) Mayl qasrī (violent inclination) or Mayl gharib, or quwwah mustafādah. The identity of the 'borrowed force' and the 'violent inclination' is affirmed by Abū'l-Barakāt.[4]

1.Avicenna,K.al-Shifāʾ,op.cit.,pp.523-525.
2.Ibid.,p.525;K.al-Muʿtabar,op.cit.,vol.II,p.113;S.Pines,Les précurseurs Musulmans de la Théory de l'impetus,in Archeion,vol.XXI,(1938),p.301.
3.K.al-Muʿtabar,op.cit.,vol.II,p.100.
4.Abū'l-Barakāt says,"having examined the problem we find that the mobile assumes from the mover a force which we call mayl".K.al-Muʿtabar,op.cit., vol.II,p.113.

Avicenna, like Aristotle, does not believe that the violent motion is possible in the void. He says if there existed such motion in the void it would neither be annihilated nor interrupted in any way. If it were annihilated, this would happen either through the intermediary of an external cause, or through its own essence. The second alternative is impossible, because the existence of that whose essence is apt to be annihilated is impossible even for a moment.(Chunke ānche dhatash mustaḥaqq-e ʿadam ast wujūdash hīchghāh mumkinamīst). In the case of the first alternative, the external cause must either reside in the body in motion, or outside that body. If the former were true, because in the beginning of the motion it is supressed, it would need another cause in order to become a dominant cause. But this process goes on ad infinitum. If the latter were true, this outside cause would exercise its action (taʾthīr) either being in contact with the body in motion, or from afar. If the former is accepted, then the cause in question will have to be a body. No such body exists in absolute void. If this cause excercised its action from afar, why did it not exercise this action in the beginning of the motion. Rather, the most acceptable doctrine is that it is the continuous succession of resistances of the medium that annihilates the motive force imparted to the projectile. [1]

1.Avicenna,K.al-Shifāʾ ,Furūghī's translation,op.cit.,p.214.

The starting point of this theory is obviously Aristotle's theory[1] of the impossibility of motion in the void. As we have already mentioned the relevant theories before, we shall not go into details here.

The above Avicennan theory presupposes only the gradual resistance of the medium for the annihilation of the violent motion. In this respect, John Philoponus anticipates the criticism of this theory. For him in the void the resistance of the natural inclination of the projectile is in effect, consequently it does not persist indefinitely.[2]

Avicenna also deals with the question why the violent motion is faster in the middle of its course than in the beginning and in the end. He cites the following explanation in order to criticize: it is because the air in front is rarefied as the projectile moves along. Avicenna argues that the more the air in front of the projectile is rarefied, less it is capable of maintaining the motion it occasions, therefore it cannot be the cause of the acceleration of the projectile. Perhaps the rarifying effects of friction exceeds in the beginning of the motion, the effects of the progressive weakening of the motive force, so

1.Aristotle,Phys.,IV,8,215a,19.
2.Philoponus' commentary on the fourth book of the Physics of Aristotle; Duhem,op.cit.,vol.I,pp.350-371.

that the body accelerates in the first half of its course. In the second half it continually decelerates.

Avicenna, having investigated the relations between the motive force and the weight of the objects, establishes the following formulae.[1] (a) Bodies moved by a given power would travel with velocities inversely proportional to their weights, and (b) Bodies moving with a given velocity would travel against the resistance of the air distances directly proportional to their weights.[2]

Another problem concerns the existence of the quies media. According to Aristotle, there must be a moment of rest between two successive and opposite motions. This is valid for all the categories of motion except the circular motion.[3]

Avicenna favours the Aristotelian thesis. To prove the existence of the quies media, he proposes several arguments: (a) In the end of its ascension, the projectile still preserves a portion of its violent inclination. This portion of the violent inclination being equal to the natural inclination of the projectile, the projectile stays in balance before starting its downward motion. This state of equilibrium ends when the residue of the violent inclination completely disappears.

1.Avicenna,K.al-Shifā',Furūghī's translation,op.cit.,pp.526ff.
2.S.Pines,Études..,op.cit.,pp.60-61;crombie,op.cit.,vol.II,pp.52-53.
3.Aristotle,Physics,VIII,8.

(b) Violent rest can be caused by the initial weakness of the natural inclination which at first is incapable of moving the projectile downwards.[1] To demonstrate his case he resorts to the example that nine people cannot remove the stone which requires ten of them. By this argument he also proves that every mayl does not necessarily produce motion.

Although Avicenna accepts the existence of a mayl in an immobile body, he is reluctant to admit that two opposite mayls may exist in one body. For him, in this body, there can only exist a principle (mabdaʾ) to produce the opposite mayl. But this opposite inclination does not arise immediately after the first motion. It requires a moment of rest.[2]

Abū'l-Barakāt, in his account, has no intention of abolishing Avicennian notion of violent inclination or "borrowed force". But on several points his originality stands out.

Against the theory of antiperistasis, Abū'l-Barakāt, like Avicenna, cites the inability of the air to plunge itself into a wall

1.Avicenna,K.al-Shifāʾ,Furūghī's trans.,op.cit.,p.471.
2.Ibid.,p.477.

more deeply than an arrow, and the inability of the air to support an arrow, although a heavy stone may be carried away or broken into pieces by turbulent winds. [1] He follows Avicenna on the question of the progressive acceleration of the projectile until it reaches the middle of its course. To the argument mentioned before, he adds that if the effect of the continual rarefaction is admitted, the projectile will reach its maximum speed not in the middle of its course, but at the end. [2]

To solve this problem, Abū'l-Barakāt argues that the unnatural quality imparted to a body gains at the end of a certain time, a force superior to that which existed in the beginning of the motion. He explains why this motion ever comes to an end. The medium and the natural inclination are not the only causes. There is one other cause: the continual movement of the projectile away from the mover. [3] This motion implies that indefinite motion of a projectile in the void is impossible.

In dealing with the problem of the quies media, he first refers to the authority of Plato. According to Plato, he says, the unnatural force which determines the upward motion of a stone will continually weaken, while the natural force of the stone is increasing. When the stone has reached the extreme point of its ascension, it will still have an imperceptibly slow motion. This produces the illusion that the stone is at rest. [4]

1.K.al-Muʿtabar,op.cit.,vol.II,p.114.
2.Ibid.,vol.II,p.114. 3.Ibid.,vol.II,pp.114-115.
4.Ibid.,vol.II,p.94.This theory is not found in Plato.

In order to reject the theory of the quies media, Abū'l-Barakāt recalls some empirical observations. He cites the example of a large stone which encountered a tiny body such as a date-stone in its downward motion. Against Aristotelians he says, at the time of collision there can be no moment of rest. If the date-stone underwent a moment of rest, this would necessitate the immobilization of the large stone (grindstone) for the same period of time. [1] But Avicenna, to save the appearance, attributes the cause of rest of the date-stone to the turbulent air carried down by the grindstone in front, so that the date-stone would not stop the grindstone at the moment of its rest. [2]

Abū'l-Barakāt, secondly, gives the example of an experiment carried out by a certain venerable man: This man put the one end of a piece of thread through the hole made in the middle of a ruler(mistarah). On the other end he suspended a weight (al-shāqūl). Having tied the former end of the thread on to a mihatt (implement for cleaning hides), he moved the mihatt on the ruler from one end to the other. During this process, the weight suspended on the other end of the thread would go up and down as the mihatt is moved from the one end of the ruler to the other. Since the rectilinear motion of the mihatt is continuous there will enter no moment of rest between the upward and downward motion of the weight. [3]

---

1. Ibid., vol.II, pp.96-97.
2. Avicenna, K.al-Shifā', Furūghī's trans., op.cit., p.470.
3. K.al-Muʿtabar, op.cit., vol.II., p.97.

As we have already seen, Avicenna infers the necessity of the quies media from the fact that two opposite mayls do not exist in one body. Abū'l-Barakāt, to cripple this argument, establishes the coexistence of two opposite inclinations in a link (al-ḥalqah). pulled in two opposite directions. It is the same, says Abū'l-Barakāt, with the objects thrown upwards. They always preserve their natural inclinations which are downwards. The natural inclination of bodies is one of the causes of retardation of the upward motion of the projectile. Unless we accept this fact, it is impossible to explain why there exists a difference in speed between the two stones of different size, thrown upwards by the same hand and with the same force. Bigger the stone, more slowly it ascends, possessing a stronger natural inclination.[1]

Abū'l-Barakāt proceeds to consider the more important question of whether the quies media exists,+ when all the forces reach an equilibrium. He outrightly rejects the existence of the quies media by saying that no reason can explain this interruption. The violent force continually declines as natural inclination increases. The instant the projectile ends its ascension is when the equality of forces occurs. But this instant is identical with the beginning of the time of its descent. There is no reason for a moment's struggle among the forces, since as soon as the projectile ends its ascension it is overpowered.[2]

1.Ibid.,vol.II,p.100.

+)Like Abū'l-Barakāt,Crescas (1340-1410),the Spanish Jewish philosopher, denies the existence of the quies media.See Wolfson,Crescas' Critique.., op.cit.,pp.84,279,281,and 623ff.

2.K.al-Muʿtabar,op.cit.,vol.II,p.102.

The admission of the principle that two opposite inclinations can exist in one and the same body enables Abū'l-Barakāt to solve the problem of the acceleration of the falling objects. According to him the fact that during its downward motion the projectile still preserves a portion of its violent inclination which in the course of the motion gradually disappears and that this consequently, necessitates gradual increase in the fall of bodies, explains only one of the factors causing this acceleration.[1] Sometimes this factor may be absent, as in the case when the effect of the violent inclination disappeared completely and also in the case of a stone dropped from a high place. In both cases the stone continually accelerates.

He explains acceleration in the following way: The violent mayl is continually decreased by the resistance of the medium in view of the fact that, being separate from its mover, it is unable to produce successive mayls which can replace the amount of mayl lost. By contrast, the natural inclination inheres in the body itself and is able to produce successive mayls, and consequently it continually augments.[2]

S. Pines finds in this account the anticipation of the modern

1.This theory was also held by Hipparchus and Alexander of Aphrodisias. Cf.Duhem,Études sur Léonard de Vinci,vol.III,(Paris,1913),pp.57-90.
2.K.al-Muʿtabar,op.cit.,vol.II,p.101.

theory of acceleration and formulates it thus: "A constant force engenders an accelerated movement."[1]

Although Abū'l-Barakāt's account of the accelerated motion explicitly implies this formulation, it still reminds us of the Aristotelian animistic theory, and above all the hylozoism of the Presocratic philosophers, since Abū'l-Barakāt explains motion in terms of mayl, of natural and unnatural places. This is even more evident in the Kitāb al-Samā' wa'l-ʿālam, faṣl VIII, where he explains the upward and downward motions of a stone in terms of an inferior kind of perception. He says, "The stone moves downwards, because it conceives the place towards which it moves fit for its nature..." [2]

Through the hierarchy of the four elements which are earth, water, air and fire, according to Aristotle, we reach the sphere of the moon and the fifth element, ether (athīr). Each element has its natural place. When it is removed from the place in which it naturally inheres, it tries to return to it. Although the sublunary elements differ by their upward and downward motions, they still form a unity with regard to their rectilinear motion. They are substantially different from the celestial element as well as by their motion. The

1.S.Pines,Études..,op.cit.,vol.III,no.2,pp.11-12.
2.K.al-Muʿtabar,op.cit.,vol.II,p.153.

The celestial substance is eternal and imperishable, and has a circular motion which, unlike the sublunary elements, is perpetual, and no part of the celestial substance can be separated from its whole. The Stoicians and most of the Neo-Platonians among them John Philoponus, deny the existence of the celestial substance.[1] They attribute to the heaven either an igneous nature or regard it as composed of all the four elements, among which fire dominates.[2] They endow fire with a rectilinear motion as well as a circular.[3] When the fire is in an unnatural place, i.e. in the sublunary region, its motion is rectilinear, but when it is in its natural place, i.e. in the heaven, it has a circular motion.

Plutarch declares that natural places as such are not the cause of natural motions, and these places do not exist in the sense Aristotle understands.[4] A part of any element separated from its whole tries to

1. The Cambridge History of Later Greek and Medieval Philosophy, ed. by A.H. Armstrong, (Cambridge, 1967), pp.479ff.; E. Gilson, History of Christian Philosophy in the Middle Ages, (London, 1955), p.90; S. Pines, A refutation of Galen by Alexander of Aphrodisias and the Theory of Motion, in Isis, vol.LII, (Maryland, 1962), p.50.
2. Plotinus, Enneads, II, 1, 4-7.
3. Abū Bakr al-Rāzī is of the opinion that the melting gold and the boiling water has a circular motion in the sublunary world. Cf. S. Pines, Nouvelles Études.., op.cit., p.55.
4. Plato, Timaeus, ch.62 and 63; Duhem, Le System.., op.cit., vol.II, p.360.

return to it, wherever the place of the whole may be. A similar doctrine is found in Thābit b. Qurra.[1]

Abū'l-Barakāt, like Avicenna, rejects the fundamental principle that natural places in the Aristotelian sense do not exist. If the whole of one element is removed from its natural place, it will try to return to it.[2] He denies the igneous nature of the celestial element. For him, it is of a particular substance.[3] But, on the other hand, he affirms the thesis that part of the celestial substance can be separated from its whole and this part, in turn, tries to return to it. This theory evokes the Aristotelian objection that two opposite mayls cannot inhere in one and the same body;[4] in this case the principle of rectilinear motion and that of circular . Aristotelians also object to the analogy made between the sublunary elements and the celestial substance. They say: This is inadmissible by the fact that the former are always at rest when they are in their natural places, unlike the celestial element.

1.S.Pines,Études..,op.cit.,volIII,no.2,p.24;Fakhr al-Dīn al-Rāzī,Mabāhith al-Mashriqiyyah,vol.II,(Hyderabad,1343H.),pp.63f.
2.K.alMuʿtabar,op.cit.,vol.II,pp.106-107.
3.Ibid.,vol.II,p.136.
4.Ibid.,vol.II,p.109.

With regard to this comparison, Abū'l-Barakāt says that the circular motion of the celestial spheres corresponds not to the rectilinear motion of the elements, but to the state of rest.[1] When a part of the celestial substance is removed from its natural place, it acquires a rectilinear motion as in the case of the sublunary elements. This part of the celestial substance moves in a straight line till it reaches its natural place where it has a circular motion. Therefore there is no need to admit the coexistence of two different inclinations.[2] In point of fact, he admits the coexistence of these two different inclinations, then we have neither a circular nor a rectilinear motion, but a curvilinear motion.[3]

The circular motion of the spheres is only possible with regard to something immobile. This immobile something can not be the earth, since the sublunary order is dependent upon the celestial order. Then there must exist outside all the spheres an immobile sphere. (fa harakat kull samā' wa kawkab innamā hiya bi'l-qiyās ilā mā huwa 'a'lā minhu lā bi'l-qiyās ila mā huwa dūnahu).[4] The immobile sphere is the object of desire for the celestial element just as for the sublunary elements, the natural places are the objects of desire. A similar

---

1. Ibid., Vol.II., p.110
2. Ibid., Vol.II., pp.110-111.
3. Ibid., Vol.II., p.111
4. Ibid., vol.II., pp.145f.; S. Pines, Études.., op.cit., Vol.III. No.2., p.28, n.344.

attraction exists also between the spheres themselves. These two facts explain the circular motion of the spheres.

III. Psychology.

According to Aristotle and the subsequent philosophers following the Neo-Platonian tradition, among them Alexandrian commentators of Aristotle and the falāsifah in Islām, the science of the soul forms part of natural sciences. Abū'l-Barakāt, following the same tradition, treats of this science in the Physics of the K. al-Muʿtabar, in spite of his non-conformist attitude towards Aristotelian philosophies of his time. Among others one important point in Abū'l-Barakāt's psychology, ormore precisely throughout his main work, K. al-Muʿtabar, stand out prominently: certainties of our knowledge, that is, the knowledge that we have before everything else. He distinguishes three categories of a priori knowledge: (a) the Knowledge of Being, (b) the Knowledge of Self or the Soul, (c) the Knowledge of Time. [1] Our treatment here will concern the second kind of knowledge, namely that of the soul.

Avicenna defines soul in terms of forces (faculties), perfection and form. According to him, soul is the first perfection of a natural body endowed with organs. [2] The soul as a 'single genus' is divided

1. K.al-Muʿtabar,op.cit.,vol.III,p.39;the text concerning this notion has been translated by S.Pines in Scripta Hierosolymitana,vol.IV, (Jerusalem,1960),p.150.
2. Avicenna,K.al-Najāh,tr.by F.Rahman under the title of "Avicenna's Psychology",(Oxford,1952),pp.24f.;see also Afnan,op.cit.,p.136;E. Gilson,op.cit.,p.198;K.al-Muʿtabar,op.cit.,vol.ii,p.299.

into three species: (a) the vegetable soul which is the first entelechy of a natural body possessing organs insofar as it is reproduced, grows and assimilates nourishment, (b) the animal soul, which is the first entelechy of a natural body possessing organs, insofar as it perceives particulars and moves by volition, (c) the human soul which is the first entelechy of a natural body possessing organs insofar as it acts by rational choice and rational deduction, and insofar as it perceives universals.

Abū'l-Barakāt, in his treatment of forces operating in corporeal bodies tries to find a common name for the vegetable, animal and human souls. This common concept is 'apperception' (shu'ūr). These three categories of the soul are in accordance with its capacity of apprehending. Men and animals have in common the apperception of their apprehending, but differ with respect fo rational choice and deliberation, which exclusively belongs to men. Both are different from plants which have no apperception of their apprehending, and are capable of various activities, and from inanimate bodies which only have one kind of activity. [1] After these preliminary remarks, Abū'l-Barakāt proposes this definition of the soul: "Soul is a force which is united to an organic body (badan) and which, because of its apperception

1. K.al-Mu'tabar,op.cit.,vol.II,p.298;cf.S.Pines,La Conception de la Conscience de Soi chez Avicenne et Abū'l-Barakāt,in Archives d'Histoire Doctrinale et Littéraire de Moyen Age,vol.XXI,(Paris,1954),pp.86f.

and perceptive knowledge which are proper to it, produces in and through this body, activities and motions proceeding from it and differentiated as to their times and spatial directions and it leads the body to its specific perfection and preserves it." [1]

Having explained that soul is equivocally predicated of the vegetable, animal & human and celestial soul by the ancients, he concludes that in the above definition the primary knowledge that man has of his soul is not included. This knowledge is anterior to the knowledge that we have of other things. Even if we were devoid of all that which is visible, audible and perceptible, we should be aware of our soul. And in the process of all activities which we accomplish, we have the apperception of our soul and that it is with us. [2] The common people, as well as the élite know that we have a soul which is our ipseity and being (anniyah) when they say, "I felt joyful", "I became angry", and so on, even though they do not know whether it is an accident or a substance. However we can attain perfect knowledge by availing ourselves of speculative proofs in virtue of a gradual improvement of our knowledge. For example, we know that our body can be small or big, thin or fat, but in both cases, we remain identical with our self. Therefore we perceive that our soul is other than this body. On the other hand

1. K.al-Muʿtabar,op.cit.,vol.II,pp.303f.;S.Pines,La Conception..,op.cit., p.61.
2. K.al-Muʿtabar,op.cit.,vol.II,pp.305f.;S.Pines,La Conception..,op.cit., p.62f.

it might happen that one of our organs was amputated, even then, we should still verify that we have remained identical with our self. We shall therefore know that the amputated organ is not part of our being and the ipseity of which we have apperception. [1] By an analogical reasoning based on the knowledge that we have of ourselves, we can say that we have an apperception of the modes of being (aḥwāl) of animals and plants whose content resembles in certain respects that which we perceive of our own mode of being. This apperception shows us that in these bodies there exist entities which are the principles securing their unity constituted by the cohesion of their parts, temporal duration, nutrition, growth and configuration (ashkāl), all the acts which proceed from them. These principles are the souls whose bodies, with all that which subsist in them, are, by their manner of being, the subordinates. [2]

The above exposé of Abū'l-Barakāt is obviously influenced by Avicenna's argument for the existence of the soul apart from the body where he gives as an example the 'suspended man'. [3] It has frequently been shown that this argument had been the inspiration of many of the Scholastics of Medieval Europe. [4].

---

1. K.al-Muᶜtabar,op.cit.,vol.II,pp.305f.;S.Pines,La Conception..,op.cit., p.62.
2. K.al-Muᶜtabar,op.cit.,vol.II,p.301;S.Pines,La Conception..,op.cit.,p.60.
3. Avicenna,K.al-Mubāḥathāt,in Arisṭū ᶜind al-ᶜArab,ed.by A.Badawī,(Cairo, 1947),p.207;K.al-Ishārāt,ed.by Forget,(Leyden,1892),p.120;E.Gilson,op. cit.,p.198;Afnan,op.cit.,p.150.
4. S.Pines,La Conception..,op.cit.,p.62.

We shall dwell upon the consciousness of self later at great length. Let us, now, turn to the theory of the multiplicity of the faculties of the soul acknowledged by Aristotle and his followers.

As we have seen before and shall see later, Abū'l-Barakāt's method of exposition has three stages. In the first part he relates the earlier arguments, in the second, he polemizes against them and in the third he arrives at the truth. It is at this stage that we usually find his personal reflections.

According to earlier philosophers, the diversity of psychical acts corresponds to the diversity of the faculties of the soul. The nutritive faculty comprises four secondary faculties: (a) the attractive, (b) the retentive, (c) that which transforms nourishment, and (d) that which rejects what is superfluous. They ennumerate along the same lines the faculty of growth, that of procreation which has two aspects; male and female and to which is subordinated that which transforms semen into the organs of the foetus. The vegetable soul watches over these faculties and it is also called terrestrial and physical soul. (nafs ardiyyah and nafs ṭabīᶜiyyah), or all these faculties constitute the vegetable soul. [1]

Animals which move by volition and deliberation have two faculties:(a) the motive faculty, and (b) the perceptive faculty.

---

1. K.al-Muᶜtabar,op.cit.,vol.II,pp.309f.

Each motion of the organs has a principle or a faculty subsisting in the muscles particularized to that motion. According to this opinion, motive faculties found in a certain individual come to 527, the same number as the muscles discerned in the body. They put at the head of these faculties the volitive motive faculty (al-muḥarrikat al-irādiyyah) to which they attributed two faculties: (a) Concupiscence (quwwāh shahwāniyyah) which urges the appetitive faculty towards the desired object, (b) the faculty of anger which turns it away from what is harmful (al-mu'adhdhī), or urges it to go near and cause, in its turn, injury. [1]

To each category of sensory and mental perceptions corresponds a faculty or a particular principle.

The sense-perceptions are five, according to the number of external senses, or eight if the faculty of touch is divided into four different faculties discerning four pairs of contraries: (a) hot and cold, (b) hard and soft, (c) moist and dry, (d) rough and smooth. Abū'l-Barakāt wonders why they did not regard the faculty of taste as possessing more faculties by dividing it into faculties discerning bitter and sweet, sour and acrid; and sight into faculties discerning white and green, red and yellow, and so on. The reigning philosophy also differentiates the following faculties of mental perception: (a) Sensus Communis. Here he again wonders why they did not multiply this faculty in accordance with the multiplicity of its objects

1. K.al-Mu'tabar,op.cit.,vol.II,p.310.

of perception. (b) The primary imagination (khayāliyyah ūlā) which is the representation of forms perceived by the sensus communis. (c) The imaginative faculty (al-mutakhayyilah) which combines and separates these forms. (d) the Estimative faculty, and (e) Recollection and Memory. Abū'l-Barakāt states that some of these philosophers divided memory and recollection as two separate faculties. The Estimative faculty is something considered as that which controls others. This term is also used by some to designate this group. The aggregate of these motive and perceptive faculties are regarded as being controlled by a single faculty called the Vital Soul. [1]

The intellective activities are also divided into two faculties: (a) the Theoretical Intellect which is the sum-total of opinions and universal notions, (b) the Practical Intellect which determines the particular activities and controls them with respect to its ends and theoretical intentions. At the head of these faculties stands the Rational Soul, or the Potential Intellect, which is also called the Human Soul. [2]

Having completed his account of the faculties of the soul, he recounts the arguments in favour of the multiplicity of the faculties. They said that the primary imagination which preserves the sensible

1. K.al-Muʿtabar,op.cit.,vol.II,p.311.
2. Ibidem.

forms resulting from the mental perceptions is different from the Sensus Communis which also perceives forms of this kind. If the percipient of these forms subsisting in us also preserves them because they are with it and in it, it will at the same time be the percipient and sentient of these forms as long as it is the preserver. But they are preserved in us because we turn to the examination of these forms after they have disappeared with no reference to external perceptions. This is why they are preserved in us but not perceived externally. Therefore there needs to be two different faculties. [1]

The other argument which very much occupied Abū'l-Barakāt concerns the fact that we can hardly, or in no immediate way, discern the transformation of food in the interior of our body. This process is very seldom perceived when the food is in the stomach, and never when it passes into the liver. If we had immediate perception of the passage of food into different nerves, veins and articulations and of the transformation it undergoes, we should directly know the localization, form and function of the internal parts of the body and could save us the laborious study of anatomy. This would prove that there exists various physical faculties. [2]

According to Abū'l-Barakāt, this is not the only possible

1. Ibid.,pp.311f.
2. Ibid.,vol.II,p.313.

explanation of the phenomenon. One would rather tend to believe that our incapacity to perceive the digestive processes is due to their continuous and gradual character. For example, gradual change of position of the sun and gradually intensifying pain does not make itself felt. To attain consciousness of this sort is difficult, but harder still to have an apprehension of this apprehension. The fact is that the multiplicity of apprehensions of the human soul prevents it from being conscious of all. In this case, it cannot pay attention to the process of simultaneous and diverse digestion and growth taking place in various organs gradually and without any break. Furthermore, by studying the facts of forgetfullness, mental confusion and inebriation we can verify that a man can perform acts of which he has no knowledge. But this does not prove that their causes subsisting in our bodies is other than us, that is, other than our soul which is our self and ipseity.[1]

According to them, the faculty of growth disappears at a certain period of life, whereas the nutritive faculty goes on operating till death. This proves that both faculties are different. Another argument asserted by them along similar lines is that the multiplicity of faculties can be inferred from the absence of motive and sensory faculties in plants and rational faculties in animals other than men, as well as from the fact that certain animal species are deprived of one or several external and internal senses which are found in others. For example, moles have no eyes and some species of snakes have no sense of

1. Ibid., vol.II., pp315ff.

of hearing and most insects have most of the senses except the sense of touch and that of taste, and evidently the estimative faculty is not found in most animals generated spontaneously, for example, moths have a desire for fire and they throw themselves into it, and because they are hurt, they move away. But they return to it for the second time, having forgotten what happened. [1]

For Abū'l-Barakāt, these arguments are not admissible. Because if the soul does not exercise a certain action, this is not a defect in the faculty which is endowed with this action, but because there is no corporeal organ required for the function in question, or because it is not prepared to exercise this function. [2]

In refutation of the arguments in favour of the multiplicity of the faculties of the soul, he finally resorts to self-evident truths. We have an evident apperception of the fact that each of us is himself, the subject who sees and hears, thinks and reflects, preserves in his memory and recollects, likes and dislikes, is glad and angry; his ipseity and his being remain one and the same in every action, and do not admit any change in them. But a multitude of things has no unity in themselves, seeing that two things cannot be one with regard to a mode or to an attribute which are common to them. If we were to admit the

1. Ibid., vol.II, pp.312ff.
2. Ibid., vol.II, pp.317f.

unity of the multiple and the diverse, it would not be possible that the multiple faculties which exist in a single individual should be identical with their unique ipseity of which we have no apperception. Therefore, in the case when they exist, this ipseity would only be one of them. But supposing that both this ipseity and the faculties exist, it will be the latter that operate. The agent would consequently be other than the ipseity. If it were the visual faculty that sees, the faculty which is other than myself, it would follow that it is not me, but some other thing that sees. But I have an apperception and knowledge and an evident intellection and the truth of the fact that it is me who sees, hears and acts. Supposing now that the visual faculty sees at the same time as I, and me at the same time as it, each of us separately and in such a way as to perform this act by himself, I should, in this case, have no need for it. In truth, we have the apperception of the fact that it is us who see and not that some other thing is performing it for us. This is also expressed in our manner of speaking. Supposing, on the other hand, that the visual faculty transmits every visible object, and that it has seen the seeing subject, who would then see in it through it?...The seeing subject of whom I have knowledge and apperception, is myself, it is my soul which is my ipseity and being, whereas all the rest is only a substratum or an instrument of transmission, as is, for example, the eye and the vital spirit (al-rūḥ). [1]

1. Ibid., vol.II, p.319; S.Pines, La Conception.., op.cit., pp.66ff.

He, later, dwells upon another important point; a given faculty could either have the apperception of another faculty, which would not be the apperception of the self, or an apperception having as its object only itself. But the truth is that man has the apperception of his apprehending his own ipseity and that this last apperception shows that this ipseity is one and not multiple. [1] Everyone has the apperception of the unity of his ipseity whatever the differences of periods and circumstances. [2]

It is clear from the passages cited above, that Abū'l-Barakāt fiercely attacks the foundation of the traditional doctrines of psychology and establishes instead a "Psychology of Consciousness". We know that attempts have been made by Avicenna to prepare the way for Abū'l-Barakāt, but his close attachment to the Aristotelian psychology prevented him from going far enough. His explanation is limited and only establishes the existence and activity of the intellective soul. In other parts he mainly follows the traditional path. Everything considered, it may be said that Abū'l-Barakāt is closer to the French philosopher Descartes than Avicenna. [3]

Abū'l-Barakāt distinguishes two kinds of perceptions: (a) the external sense-perception which is the outcome of hearing, smell and taste and touch, (b) the mental perception which pertains to

1. K.al-Muʿtabar,op.cit.,vol.II,p.319.
2. Ibid.,vol.II,pp.314 and 319.
3. S.Pines,La Conception..,op.cit.,pp.22-56;F.Rahman,Avicenna's Psychology, op.cit.,p.10.

mental representations. We alone attain mental knowledge without the interference of the external senses, just as the man who is asleep sees in his sleep and the man who cogitates sees inwardly and in his mind and perceives things which are not present in his body and members, for example, a mountain of gold or a silver tree, or a sea of blood, or a river of honey. [1]

Abū'l-Barakāt is aware of the limited knowledge we have concerning the nature of our perceptions. Perception (idrāk) is a state of relation corresponding to the thing which perceives and to the thing perceived. Without these two terms, this state of relation cannot exist. There is, therefore, no perception of any sort of a non-existent thing. Supposing that there is, then this is not the case of true nothingness. We know that the existence of a perceiving subject and a perceived object is not sufficient for a perception to exist. For if it were so, the human soul would perceive all the existents which behoves it to perceive. Thus, there would be nothing that is concealed to it. But in fact what it does not know exceeds by far what it knows. Therefore it is in need of a mode (hāl) which is superadded to its existence and to that of perceptible things, in order to attain knowledge and perception of what it actually perceives. [2]

1. K.al-Muʿtabar,op.cit.,vol.II,p.323.
2. Ibid.,vol.II,pp.323f.

The external perception is constituted by five senses: sight, hearing, smell, taste and touch.

The visual perception was explained by the earlier philosophers either in terms of images proceeding from objects which are perceived when the images are impressed on the organ of sight, or in terms of rays presenting the feature of a cone and proceeding from the pupil of the eye.[1] In the latter case, the visual perception takes place when these rays reach the object of sight.

As for the former, Abū'l-Barakāt is doubtful whether the image of the heaven can impress itself on the pupil of the eye, considering the obvious disproportion of magnitudes. But if it is said that the whole image of an object is not impressed on the visual organ all at once, but only the part present in the direction of sight, and by changing its direction with great rapidity it discovers the other parts of the object and consequently perceives the whole as if it took place simultaneously. Abū'l-Barakāt objects by stating that we should then perceive each part successively, one disappearing after the other. Even though this happened with the greatest rapidity, we should not be able to see the every part of an immense object. On the other hand, it may be said that we see the successive images in the common sense which

1. The former theory is post-Aristotelian in origin, and the latter Platonian. See F. Rahman, op. cit., pp. 76f.; K. al-Muʿtabar, op. cit., vol. II, pp. 324ff.

which is the meeting point of the images coming from the two eyes, for otherwise we should see one object as if it were two. It is through this faculty that the posterior images are superadded to those which have preceded them simultaneously. It is for this reason that we can perceive an object as being in the act of depicting a circle in the air, though it is not simultaneously in every part of the circle. Abū'l-Barakāt propounds his former argument against this: He says, how is it then possible for the images of immense objects such as a large mountain or the heaven to be contained in this faculty? 'But', he says, 'we know that we see things, small or large, according to their different dimensions. Their being smaller or bigger than the others are perceptible to the sight and can be the object of comparisons for the mind.' [1]

The argument that vision is due to rays issuing forth from the pupil of the eye is also inadmissible, because it is absurd to hold, as the followers of this theory do, that it is these rays that perceive or that the percipient is in these rays. For these rays, or that which is in them are not the human soul. [2] If these were the soul of man, it would follow that the latter is separated from the body every time he sees something. But the separation of the soul from the body means death.

1. K.al-Muʿtabar,vol.II,p.327.
2. Ibid.,vol.II,pp.323-324.

The case would be the same if it was supposed that these rays were not the soul but were residing in it as the vital spirit does. If a part of the soul goes towards the object and perceives it, then this part must be other than the soul, for the very reason that the soul is indivisible. The true explanation of the fact is that we know by an evident knowledge which cannot be called into question. that it is the soul which sees by means of the eye, and hears by means of the ear and so on. Moreover, the soul, which is our ipseity and being, sees objects themselves as they really are and according to their magnitude, and not their images which are inside the brain. If it were to see an object inside the brain, it would certainly be capable of seeing this very interior itself where it is supposed to see this object. But we cannot see the eye, how, then, can we see what is behind?

The theory of rays, however, has more force in the eyes of Abū'l-Barakāt than that of images. These rays like the bodily organs are only the instruments for visual perception, and the agent of this perception is the soul itself. [1]

According to the current theory of hearing, we hear the sound when the aerial waves produced by the clash of two hard bodies reach the cavity of the ear. If it were so, according to Abū'l-Barakāt

1. Ibidem; Plotinus appears to be of the same opinion. See Enneads, IV,6,1.

we should not be able to differentiate whether the object producing sound is near or far, nor should we be aware of the difference of direction. The difficulties, for Abū'l-Barakāt, are that the vibration, when it has reached the cavity of the ear, does not bear any trace of direction from which it comes, and that when we heard two sounds of equal distance but of different strength, then we should confuse the distance with the strength of the sound. There is no doubt that we perceive the sound as it is produced, just as we perceive the object of sight, with only one exception, namely, that we perceive the objects of sight as possessing durable existence, whereas the sounds have no such existence. But how is it to be explained the fact that there passes a certain time between the production of the sound and the instant we hear it? According to Abū'l-Barakāt, the hearing process is only started by an aerial wave which has arrived at the cavity of the ear, but it finds its perfection in the fact that we ourselves retrace the course of this wave to its source.[1]

Concerning the remaining three faculties, that is touch, taste and smell, he observes why they attributed four specific faculties to touch and not to smell and taste. The subject who has a sensation of touch, smell and taste and so on is one and the same entity which is the

1. K.al-Muʿtabar, vol.II, pp.329ff. and 334ff.

soul itself. If some other entity accomplished one of these acts, then this entity would not be conscious of its perception. For it is only the soul which has the apprehension of its own consciousness. [1]

Unlike Avicenna, he does not differentiate the apperception of self from that of the activities in which the corporeal organs come into play. [2] There is no reason to accept this distinction, because the certainties of consciousness establish, on the contrary, a unity of the subject, as it is incompatible with the multiplicity of psychical faculties; it is only the I that acts in order to accomplish all the functions in question. On the other hand, impossibilities would follow if we accepted the fact that the multitude of different qualities, such as hot and cold, dry and moist co-exist in a very small space contained in the brain and that the vital spirit in which the faculties inhere lend themselves to every transformation which corresponds to the multiplicity of sensations, becoming in their turn and in a very short interval of time as dry as earth and as humid as water. [3]

Then, what is the relation of the soul to the body? This is, according to him, a love-passion relationship devoid of any act of will. It also resembles the relation between the proprietor and

1. Ibid.,vol.II,pp.337-340.
2. S.Pines,La Conception..,op.cit.,pp.22-56.
3. K.al-Muʿtabar,op.cit.,vol.II,p.341.

his property, and between the artisan and his tool, and finally between the object and its natural place. Between the souls there exists a gradation as to their capacity of apprehension. Some of the souls have more capacity than the others. The role of the body is to determine the object at any given instant the soul perceives and the temporal order of its perceptions, itself being determined by its organs; the place it occupies, its motion and rest. The body sees that which is before its eye, hears that which is as near as is possible for it to hear and has the sensation of touch of that which it touches. It is so with other perceptions. In this respect, the soul is where the body is. The body is for the soul what nest is for a bird and house for him who inhabits it (mutadayyir). If there was no body, the soul would not have received these determinations; it would not perform one thing rather than another among the multitude of those which co-exist in time and place. Each organ of the body supplies the soul with a category of activities.[1] Therefore in answering the question why the soul does not know all that which exists, he resorts to the senses which at once limit and render possible the perception. The function of the body and the corporeal organs are indispensible, because of the limited character of the faculty of apprehension and perception of the human soul. The soul can only have one perception at a time because of the nature of the

1. Ibid.,vol.II,pp.344-346.

the bodily functions and is brought into contact with others which have been perceived before and will be perceived later. In the absence of these bodily functions, the soul, when placed before the multitude of events, could not make the choice necessary for perceiving at least one part and for acting. Therefore, to employ S. Pines' expression, the body and the sense-organs provide for the soul the condition required for an ordered experience. But a soul endowed with a faculty of infinite perceptions and capable of apprehending as far as possible the totality of events would have no need of these conditions.

Abū'l-Barakāt distinguishes two kinds of activities: (a) the volitive, which is closely linked with our conscious activities, and (b) the natural and instinctive which are classified as unconscious activities, for example, search for the female by the male, protection of the young in beasts, and weeping of an infant, and the things which we do in our sleep. These are more intimately linked with the soul than the volitive activities. This is the kind of relation the souls have to the body.

The problem of the unconscious has far-reaching consequences in Abū'l-Barakāt's explanations of the doctrine of Memory. How can the forms apprehended remain in the memory without being remembered in order to rise again to consciousness when they are remembered? To answer this question he resorts to the notion of attention (iltifāt). He distinguishes between the natural attention which is instinctive (ilhāmī),

for example, an infant avoids what frightens and hurts him, and comes near to what pleases him, and the voluntary attention, for example, we drink repugnant mixtures because they have a beneficial effect, and we confront fatigue in the hope of pleasure.[1]

As has already been mentioned, the human soul cannot all at once direct its attention to many things, the fact being that those which it sees distract it from that which it hears, those which reach it through the external senses from those which the internal senses bring to it. On the other hand, when it is turned towards itself, it is not occupied with the rest.

Recollection of the ideas preserved in the memory takes place in two ways: it is either the result of a conscious process in which understanding and volition play an important rôle, or of an unconscious process. In the second case ideas or the preserved forms appear to our mind spontaneously. In this, resemblance and contiguity is of service to the mind. For example, we recollect a man in consequence of the fact that we have recollected another who is in some way like him, or we remember a verse in consequence of the fact that we have remembered the preceding verse.[2]

We see here the evidences of an associationist theory.

All the forms are preserved in the soul because of their immateriality. But what is the relation of these forms to the body?

---

1. Ibid., vol.II., p.351
2. Ibid., vol.II., p.352.

This is the relation similar to that which subsists between the eye and the object of sight. The forms come into contact with a certain ventricle of the brain, which is the middle ventricle, when we desire to recollect them, or it takes place spontaneously through the association of ideas.

Is there any difference between the forms perceived and the forms preserved in the mind? Does there exist a faculty corresponding to each category of forms?

In traditional Aristotelian psychology intellection stands out prominently among other mental activities. The Mashshā'ites speak of the material which is also called potential or passive, habitual and actual intellects. These three are the different phases of the entity called the Rational Soul. The forms apprehended by the intellect are indivisible, whereas those which are apprehended by the Psychical faculties are not. Their argument is this: if the intellect were to apprehend a divisible form, this would entail the division of the intellect in question which is absurd. According to Abū'l-Barakāt, this consequence does not necessarily follow. There is nothing to oppose the argument that an indivisible ipseity apprehends an object which is not so. Besides we know by an evident knowledge that it is the same subject which apprehends intelligible and sensible forms and representations (mutaṣawwirāt) subsisting in the mind. This subject is the ipseity of man. The intelligibles can be called the mental forms

to which no sensible object corresponds, for example, ignorance, love, hatred and so on. The others can be called sensible or imaginative forms. But this distinction is in no way implies that intelligible forms alone are to be universal. Because forms such as whiteness, redness, heat and cold are also universal forms, and they correspond to a multitude of objects, for example, snow, camphor and cotton are white. [1]

The followers of the traditional psychology also argued that the subject which apprehends sensibles is other than that which apprehends intelligibles. Therefore the subject which apprehends sensibles does not apprehend intelligibles and vice-versa. But the contrary is more likely. The subject which apprehends what is lofty, exalted and general also apprehends less lofty, less exalted and more particularized. How could it be otherwise since the mind attains to universals from what is particularized. Consequently, the subject which apprehends universals and intelligibles also apprehends sensibles and particulars. [2]

Abū'l-Barakāt's theory concerning the apprehension of particulars is intimately linked with God's knowledge of particulars. We shall deal with this theory later.

---

1. Ibid.,vol.II,pp.400-404 and 410f.
2. Ibid.,vol.II,p.416.

Are human souls one in respect to species and quiddity and differing from one another only by accidental states? Or does every soul differ individually from one another in essence and species? Or are souls grouped, as it were, by spiritual families constituting so many different species in respect to a common genus? The majority of philosophers contributed to the first. The second was hardly held by anyone. It is the third hypothesis that Abū'l-Barakāt is in favour of. This is manifested in their natures, their principles, their modes of being and acting. Therefore the substantial differences between human souls may only be due to many causes not to one cause which is the Active Intelligence as Aristotelians say. [1] But there remains one other difficulty: Does each human soul have a sui generis cause, or does a certain group of them have one and the same cause through which they exist? According to Abū'l-Barakāt there exists for the soul a guide or an instructor, and one teacher does not suffice for the execution of the psychical functions of all the human souls. Therefore it must be conceded that a number of teachers, causes or intellects from which souls proceed is needed. [2] For each individual soul, or perhaps for a number of souls with the same nature and affinity, there is a being of the

1. H.Corbin,Avicenna and the Visionary Recital,tr.by W.R.Trask, (Tennessee,1960),pp.88f.;K.al-Muʿtabar,op.cit.,vol.II,pp.381ff.and vol.III,pp.152-153.
2. M. ʿAlī Abī Rayyān,Naqd Abī al-Barakāt al-Baghdādī li-falsafah Ibn Sīnā,in the Bulletin of the Faculty of Arts of the University of Alexandria,vol.XIII,(1956),p.39.

spiritual world who throughout their existence adopts a special solicitude and tenderness towards that soul or group of souls; it is he who initiates them into knowledge, protects, guides, defends, comforts, brings them to final victory. It is this being whom the ancient sages call the Perfect Nature (Ṭibāʿ al-Tāmm). It is this friend, this defender and protector, who in religious language is called The Angel.[1] He also considers that the number of these angels are equal to that of the terrestrial, mineral, vegetable and animal species. Each angel watches over one of these species.[2]

Differences between souls and their excellency in the scale of perfection depends upon the nobility of their causes and their position in the higher world. It follows, therefore, that human souls join their causes after death. Certain human souls can, owing to immediate perception or illumination perceive the higher lights clearly. The perfect soul which is the highest in the scale of existence perceives and evidences the light of lights (nūr al-anwār). For soul is a substance whose nature it is to separate from the body when it has reached a higher degree of perfection, since the ideal life can only be found in the highest world among the angels and the spiritual personage, where it lives in comfort and luxury by witnessing God and knowing divine entities.[3]

1. H.Corbin,op.cit.,p.90;K.al-Muʿtabar,op.cit.,vol.II,p.391.
2. M.Rayyān,op.cit.,p.39;K.al-Muʿtabar,op.cit.,vol.III,p.213.This will later be called the "Lord of the Species" by Suhrawardī,the Ishraqite philosopher.See Œuvres Philosophiques de Shihābaddīn Yahya Suhrawardī, (Paris-Teheran,1952),pp.42ff.; Ḥikmat al-Ishrāq, ed.by Kūrbān,p.144; K.al-Muṭarahat,ed.in Opera Metaphysica et Mystica by H.Corbin, (Istanbul,1945),p.450.
3. K.al-Mu'tabar, op.cit., vol.III, pp.166, 214-215.

Like Avicenna, Abū'l-Barakāt does not believe in Metempsychosis. It is an amorous and natural link that attaches the soul to the body. It does not impose itself upon the body by force. After death, the soul cannot wish to assume it again. [1]

IV. Metaphysics (Ilāhiyyāt).

We have already seen, in treating of Abū'l-Barakāt's classification of sciences, that he differentiates three kinds of sciences: (a) the sciences of existing things (al-mawjūdāt), (b) the sciences of cognita (intelligible objects), and (c) the science of sciences or the highest science. The first is treated in Physics and in Metaphysics, the second in Psychology, and the third in the section concerning Logic. [2]

In another context he divides the sciences into the sciences of existing objects and into the sciences of mentally related forms which subsist only in the mind. In the former are included the Physics and the Metaphysics. The latter corresponds to the science of the soul (ʿilm al-nafs), i.e. to Psychology. [3] However, he sometimes deviates from his position regarding Metaphysics which

1. K.al-Muʿtabar, op.cit., vol.II, pp.443f.
2. Ibid., vol.III, pp.214f.
3. Ibid., vol.III, pp.1f.

he includes in the sciences of existing things and regarding Psychology which studies mental representations, i.e. mentally related forms. According to the latter position he assigns the study of universal natures (ṭabāʿi al-kullī) to Metaphysics, following Ibn Sīnā on this point, and regards Psychology which treats of mental representations (mutaṣawwirāt) as part of the sciences of existing objects. [1] This inconsistency on his part may be accounted for either by the overwhelming influence of the traditional Avicennian philosophy, or by his indifference towards the classification of sciences, since he says on this point that any classification of sciences is unnecessary except for educational purposes. [2]

Whatever the reason for this discrepancy may be, judging from his treatment of universals, essence and existence, the former classification is better suited to his philosophy than the latter.

According to Avicenna, a universal notion qua nature is one thing, and qua general or particular, one or many - whether this pertains to it actually or potentially - is another. For example, 'man' qua 'man', i.e. taken in itself is neither one nor many, neither

1. Ibid.,vol.III,pp.7-8.
2.Ibid.,vol.,III,p.5.

one nor many, neither universal nor particular. Therefore, universality and particularity are conditions or accidents which happen to man or any other essence. When humanity exists in individuals, this is called the potential universality. But when it exists in genera, this is called the actual universality. [1] The corollary of this statement is that the universality exists in individuals of external reality potentially and in genera in the intellect actually. This amounts to saying that the universals exist in re as well as in intellectu. In the last analysis, the universals exist in the mind of God, who is the creator of everything. [2]

In Abū'l-Barakāt, the balance is tilted in favour of nominalism, or more correctly of conceptualism. He identifies the universals with the mental forms. These mental forms do not exist in external reality. But this does not mean that they are non-existent as in the case of extreme nominalism, rather they subsist in mind.

Now, what is the relation of the mental forms to the things existing in external reality? According to him, the cognita (al-maʿlūmāt) subsisting in the minds (adhhān) have mental attributes(ṣifāt)

1. Avicenna, al-Najāh, (Cairo, 1357/1938), pp. 220-221; al-Shifāʾ, vol. II, (Teheran, 1303/1886), p. 483.
2. Avicenna, al-Shifāʾ, op. cit., vol. II, p. 488; see Avicenna on the Universals, F. Rahman, Essence and Existence in Avicenna, in Medieval and Renaisance Studies, vol. IV, (1958), pp. 9-11; E. Gilson, History of Christian Philosophy in the Middle Ages, (London, 1955), p. 209.

and modes (aḥwāl), pointing especially to them in their mental existence, although, in the last analysis, they are dependent on the things of external reality. In other words, they are universal, single one of which is an attribute to many things existing in external reality, as well as to many things represented in the mind: Therefore, a mental thought content [1] (maʿnā dhihnī) can be an attribute to another thought content, and a thought content representing a thing existent in external reality. The mental forms are derived from the things existing in the concrete. This is similar to the fact that the things represented in a mirror derives from the things which are visible. What is represented in the soul and known by the soul primarily is the mental form representing the thing existing in external reality. Then the soul directs itself towards this mental form or knowledge acquired from the things of external reality, and acquires another mental form or knowledge, this operation being multiplied in the soul indefinitely. Between the mental form and what exists in external reality there is a one-to-one relation. If the instances similar to that one thing is multiplied, then this mental form, in reference to its relation to this multiplicity, is called universal. For example, the human form in its relation to Zaydٌ and ʿAmr and the animal form in its relation to man and horse.

1. I adopted this translation from S. Pines; cf. S. Pines, Studies in Abū'l-Barakāt's Poetics and Metaphysics, in Scripta Hierosolymitana, vol. VI, (Jerusalem, 1960).

However, the multiple instances of similar things are not a necessary condition for the existence of a universal. Even if we have only one instance such as the sun, we can still represent many likenesses in the mind so as to form a universal notion of the sun.[1]

Universals differ in their degree of generalization and particularization. For example, one can begin a series with Zayd and ʿAmr, then go on to man, and again proceed from man and horse to animal; from animal and plant to a thing that grows or that is endowed with a soul, from a thing that is endowed with a soul and a mineral, to body and soul to substance; from substance and accident to existent and finally from existent and non-existent to thing.[2]

Universality and particularity, according to him, are superadded, in the mind, to the mental forms in their relations with things existent in external reality, and they may belong to objects perceived by the senses as well as to those that are not. For example, whiteness is apprehended by the senses, whereas humanity, understanding and knowledge are not.[3]

The fact that the universals exist in the mind becomes

---

1. K.al-Muʿtabar,op.cit.,vol.III,pp.12-14;see Abū'l-Barakāt on the Universals,S. Pines,Studies..,op.cit.,pp.138-147.
2. K.al-Muʿtabar,op.cit.,vol.III,p.14.
3. Ibid.,vol.II,p.410.

more vivid, if we turn our attention to his differentiation of of the existents into two categories; they either exist in external reality, multiplicity of perceptions having no effect on their identity, or they exist in the minds, and are multiplied by the multiplicity of persons who perceive them. For example, if a man imagines in his mind a form and communicates this in words to someone else, the representation the latter will have in his mind will not be identical with that of the former. [1]

So far we have explained his doctrine of mental forms or mental existents, or universals, but what of the existents of external reality, where do they fit into in his ontology.

The question of essence and existence, and the nature of their relation to each other had been a moot point in . Medieval Philosophy. It is largely due to Avicenna and to the translation of his works in Medieval Europe that the Christian philosophers of Europe applied themselves to the solution of this problem. [2]

In Aristotle we encounter very few references as to the nature of the relation between essence and existence. According to him, before acquiring knowledge of a thing, we must first ask whether

1. Ibid.,vol.III,pp.21-22.
2. F.Rahman,op.cit.,p.16.

it exists; if it does, then we must ask what its essence is. Aristotle is, however, more explicit in another context about the distinction between essence and existence. For him, what man is, is one thing and that he exists is another. Being is not a genus, nor is it the essence of anything.[1] Being cannot be described as something constituting the essence of a thing, but it is the most universal predicate applying to everything.[2] Speaking of the relation between existence and essence, he says that existence belongs to the essence of everything and is not accidental to it. Therefore, by describing something as existent we do not attribute to it some property over and above its essence.[3]

As it is natural in the evolution of ideas, Avicenna borrows the mainly logical distinction between essence and existence, and modifies and explains it in its own way.

According to him, 'existence', 'thing' and 'one' are the primary notions we represent in the mind before everything else.[4] Being cannot be explained otherwise than by the name 'being', because

1. Aristotle,Anal. Post.,92b,8-11;see also F.Rahman,op.cit.,p.1; S.Afnan,op.cit.,p.118;E.Gilson,op.cit.,pp.190-191.
2. Aristotle,Met.,988b,17.
3. Ibid.,IV,2.
4. Avicenna,K.al-Shifā',op.cit.,vol.II,p.291.

it is the principle of all explanations [1], and because there is nothing more general than it in order to give a satisfactory description of it. It is for this reason that he criticized those who define 'being' as that which either acts or suffers.[2] It is not obtained from abstraction, therefore it cannot be the highest genus under which we subsume all categories, but is an immediate and primary notion which renders the application of the categories to reality possible,[3] although its division into substance and accident resembles the division according to differentia and species.[4]

Not all that which exists are perceived by the senses, there are existents which cannot be perceived by the senses and whose existence in the concrete we cannot doubt. This is the case with all universals. [5]

But universals, according to him, characterize neither the essence in itself, nor the individuals, but universality is superadded to the essence (nature) when it is conceived in the mind. [6]

---

1. Avicenna,K.al-Najāh,op.cit.,pp.199-200.
2. Avicenna,K.al-Shifā',op.cit.,vol.II,p.292.
3. Ibid.,vol.II,p.291.
4. Avicenna,K.al-Najāh,op.cit.,pp.199-200;al-Ghazālī,Maqāṣid al-Falāsifah, vol.II,(Cairo,1355/1936),p.7.
5. Avicenna,K.al-Shifā',op.cit.,vol.II,pp.296-297.
6. Ibid.,vol.II,p.491.

Essence is described by him as what is asserted by an answer to the question 'what is it' and it does not tell anything about existence. But the latter is one of the constituents of the quiddity.[1] Existence is a particular kind of accident which is superadded to the essence of a thing. This is in line with his theory of creation which is opposed to the creation ex nihilo held by the Mutakallimūn.

The difference between Abū'l-Barakāt and Avicenna lies in the fact that in Abū'l-Barakāt's theory of existence, Psychology plays a more important role than in Avicenna's.

Abū'l-Barakāt first attempts to settle the ontological status of the things existing in the concrete. When a man apprehends something with one of his senses, he has knowledge of it and of his apprehending it. Only then is he certain of the fact that something exists. But this should not be taken to mean the fact of its being apprehended, rather to mean the fact of its being liable to be apprehended. For the thing is, in itself, liable to be apprehended before and after he apprehended it, and it also exists at the time of his apprehending it. Therefore it is this state of its being liable to be apprehended that is called existence. Apprehension is not a

1. Avicenna, K. al-Najāh, op.cit., pp.7-8; K. al-Ishārāt wa'l-tanbīhāt, ed. by Forget, (Leyden, 1892), p.11.

condition for existence, rather existence is a condition for apprehension. This is how we get to know the existence of an existent and not the definition of existence. For existence and existent cannot be defined. Their meaning is apprehended through a priori knowledge (bi-awā'il al-ma'ārif) and does not require a definition. [1]

Existence, therefore, forms one of our primary apperceptions together with the soul's apperception of its own self and that of time. Existence is not confined only to the things perceived by the senses. The things which are not perceived by the senses are also said to exist.[2] Existence in the mind confers some kind of existence upon the things existing in the mind alone because of the mind's existing in external reality. In this sense, in contradiction to Avicenna, non-existent may be taken as having some kind of existence in external reality.[3]

Here, a problem crops up in his study of existence. We have already seen that his position as to the soul's self-awareness

1. K.al-Mu'tabar,op.cit.,vol.III,pp.20-21.
2. Ibid.,vol.III,p.39.
3. Ibid.,vol.III,pp.62-63.

of its existence even though it is shut off from the external world and devoid of all its bodily relations is unmistakeably evident. But in such a case, is it still aware of the existence of the external world? This question is left unsettled in the context of his philosophy. However, there are indications [1] that he uses the evident character of the existence of the soul as a safeguard for being in general.

On the question of quiddities or essences (dhāt) he is not specific. Contrary to Avicenna, he does not specify their ontological status, i.e. whether they exist apart from existence. According to him, an existent exists in virtue of existence and the existence of this existence also exists in virtue of existence (bi-wujūdin). This does not go on ad infinitum and the series ends in the existent per se, not in the existent existing in virtue of existence. Therefore, the quiddity (dhāt) and the existence are identical in the first essence, as in the case of a white colour, and not of white body. For white colour is white by itself, whereas white body is white in virtue of a colour, namely, whiteness. [2]

It is very unlikely that he identifies essence with the mental forms since colour, according to him, is an attribute subsis-

1. Ibid.,vol.III,p.63.
2. Ibid.,vol.III,pp.64-65.

ting in the mind. If from this is inferred the fact that quiddities have no place in Abū'l-Barakāt's philosophy, how could the division of existence into necessary, contingent and impossible be explained?

Avicenna's division [1] of 'being' into necessary, contingent, (mumkin) and impossible, is in keeping with the general trend of his philosophy. This division stems from the fact that non-existence does not exist in any way; therefore, there must be something to which existence may be superadded.

Under the strong influence of Avicenna, Abū'l-Barakāt accepts this division of being in its entirety, although it is very difficult to fit them into his system for the reasons already mentioned. According to him, as according to Avicenna, things existing in external reality may either exist by, or in virtue of themselves (bi-dhātihi ʿan dhātihi), or they exist through something other than themselves. These latter kind of existents may, in turn, be either contingent or impossible (mumtaniʿ). Impossible per se (bi-dhātihi) does not possibly exist through something else. Otherwise, that would involve an

1. Avicenna, K. al-Najāh, op.cit., pp.224-225; cf. al-Ghazālī, Maqāsid al-Falāsifah, op.cit., vol.II, pp.53-54; Avicenna, Ishārāt, op.cit., pp.140-141; see also E.Fackenheim, The Possibility of the Universe in al-Fārābī, Ibn Sīnā, and Maimonides, in American Academy for Jewish Research, (New York, 1947), pp.39-70; G.Smith, Avicenna and the Possibles, in New Scholasticism, vol.XVII, (1943), pp.340-357.

internal contradiction. For the existence of an impossible is only possible by the annihilation of its essence, and this would mean its non-existence and the combination of two contraries.

If those things which exist through another is neither impossible nor necessary, they are called contingent. Every contingent being depends for its existence upon another preceding it in existence. But the actualization of one contingent being from another does not go on ad infinitum. Therefore they must end in the necessarily existent. All contingent beings point to the existence of the necessary being, just as the things produced in time point to the existence of the Eternal. [1]

The principle of our notions of cause (ʿillah) and effect (maʿlūl), agent (fāʿil) and product (mafʿūl) is the sensible objects. When, for example, a fire comes into contact with something inflammable, it burns. The former is said to be the agent or the cause and the latter its product or its effect. According to certain distinguished philosophers, although every agent is a cause, every cause is not an agent. For it is commonly known that every act of the agent must necessarily involve motion and time, whereas this is not the case with the production of an effect from the cause. And again, the agent acts by deliberation depending either on nature or on volition. They

1. K.al-Muʿtabar,op.cit.,vol.III,pp.22-23.

distinguish four kinds of causes (a) the Material cause (māddah), (b) the Formal cause (Ṣūrah), (c) the Efficient cause (ʿillah faʿiliyyah) and (d) the Final cause (ʿillah ghāʾiyyah).[1]

Effects may either subsist by their causes and are annihilated with the annihilation of their causes, or they survive the annihilation of their causes. For example, heat transmitted to water, subsists in water after the fire was extinguished.[2]

As every moveable has a cause other than itself, so the transitory objects, after being non-existent, are brought into being by something other than themselves. Every generated being (muḥdath) has a generator (muḥdith). But are the eternal objects which we have known not to exist in time caused or generated? According to Abū'l-Barakāt, from the fact that everything generated in time is caused, it does not follow that everything caused is generated in time, just as from the fact that every man is animal, it does not follow that every animal is man. It is known as a general rule that the causes or the effects, whether they are temporal or eternal, end up with a cause having no cause for itself (lā ʿillatan lahu). This cause is not other than the necessary existent per se.[3] Like Avicenna

1. Ibid.,vol.III,pp.48-49.
2. Ibid.,vol.III,pp.49-50.
3. Ibid.,vol.III,pp.54-56.

Abū'l-Barakāt gives God such names as the First Cause, the First Agent, and the Ultimate End. He is the ultimate end for all his creatures.

In the above resume, Avicenna's influence is unmistakeable. The causal series which end in the First Cause is also Avicennian. Every cause and every effect, though between the First cause and the last effect (al-maʿlūl al-akhīr) there exists many causes and many effects, depending directly on the First Cause.[1] As we shall later see, contrary to Avicenna's doctrine, God's efficacity does not end in the First Caused (al maʿlūl al-awwal), rather it is felt in every cause.

The relation between the agent and product, the cause and effect, possible and necessary presupposes the procession from God. Before proceeding with Abū'l-Barakāt's theory of creation (khalq), we must know something about the nature of his God.

According to the Mutakallimūn, everything besides God is possible, meaning thereby the opposite of impossible. God has absolute freedom of power over the possible. He cannot do the impossible.[2] They affirm of God all the real incorporeal attributes such

1. Avicenna, al-Najāh, op.cit., p.235; Ishārāt, op.cit., p.141 and 141-142.
2. M.Fakhry, Islamic Occasionalism, (London, 1958), p.62.

as life, knowledge, power, etc, though they make a distinction between their meaning when they are attributed to men and when they are attributed to God. Therefore, there exists, for them, a certain equivocality over the application of these terms to two different realms.[1]

Avicenna, influenced in all probability, by certain Muʿtazilites and the Neo-Platonists[2], negates all the essential attributes of God in order to save His absolute oneness. By doing so, he creates a gap between God and this world and fills this gap with intermediary beings.

Avicenna regards God's attributes either as relations or as negations, existence being the first attribute of God. When it is said that He is a substance, it means that He does not inhere in a substratum. When He is said to be One, this means that He is indivisible in any way. When it is said that He is an intelligence, intelligent and intelligible, this signifies that His existence does not mix with matter and material attachments[3], etc. He has no genus, no differentia, no definition. No categories of being apply to Him. He cannot be dem-

1. H.A.Wolfson,Maimonides on Negative Attributes,in Louis Ginzberg Jubilee Volume,English Section,(New York,1945),pp.440-441;Shahrastānī, K.al-Milal wa'l-Nihal, ed. by W.Cureton,(London,1842-46),p.67.
2. H.A.Wolfson,Philosophical Implications of the Problem of Divine Attributes in Kalām,in Journal of the American Oriental Society,vol. LXXIX-LXXX,(1959-1960),pp,73-79.
3. Avicenna,al-Najah,op.cit.,p.251.

onstrated; He demonstrates or manifests everything. [1]

All these statements amount to saying that God's essence is unknowable, therefore no positive attribute can be predicated of Him.

In his treatment of God's attributes, Abū'l-Barakāt draws upon the Mutakallimūn. Ibn Taymiyyah, the Orthodox theologian, is therefore right in saying that as Ibn Sīnā, in his negation of God's attributes, was influenced by the Bāṭinites among whom he was brought up, so Abū'l-Barakāt, in his affirmation of God's attributes, was influenced by the Mutakallimūn of Baghdād, where he lived. [2]

Abū'l-Barakāt sets to himself the task of proving the fundamental tenet of Islām; the unicity of God. In this he uses the argument Avicenna had already used. Something may be one, either individually, or in species, or in genus. In this sense it is one in one respect and multiple in another. From another point of view, something may be one either in essence or by accident. For example, the unity of a group of soldiers is accidental, whereas the unity in the sun is essential. The real unity, or the real one is that in which there is no multiplicity whatever. [3]

---

1. Avicenna, al-Shifāʾ, op.cit., vol.II, p.585.
2. Ibn Taymiyyah, Minhāj al-Sunnah, op.cit., vol.I, p.98.
3. K.al-Muʿtabar, op.cit., vol.III, pp.58-59.

In the light of these preliminary remarks, after a long discussion, he proves that the First Principle (al-mabdaʾ al-awwal) cannot be multiple with respect to place, nor as a result of its essential and accidental attributes. Nor can there be composition in the First Principle.[1] He is one in so far as His essence (dhāt), reality and quiddity (māhiyyah) is concerned. He is one (wāhid) in so far as there is no multiplicity in Him, unlike the unity of a group of individual soldiers; He is singular (fard) in so far as he has no associate or equal (nidd); He has absolute simplicity (samad) in so far as He is not composite, each perfecting the other in turn (faṣl mutammim).[2]

In what category should God's efficient causality be put? Should it be subsumed under the category of nature as in the case of the ascending motion of fire, and the descending motion of a stone, or under the category of will as in the case of our activities, which depend upon deliberation and thought, or under the category of both together, i.e. nature and will together.[3]

There is no doubt that the efficient causality (fāʿiliyyah) of the First Principle is neither accidental, nor as a result of

1. Ibid.,vol.III,pp.59ff.
2. Ibid.,vol.III,p.61.
3. Ibid.,vol.III,p.66.

compulsion. For both refer back to an essential agent (fā ʿil bi-l-dhāt) preceding them. Since prior to the First Principle there cannot be another principle, it can neither be accidental or as a result of compulsion.[1]

Now, the First Principle cannot be a natural cause (fā ʿil bi'l-tabʿ), for the natural cause is restricted to a certain activity, i.e. from one point to another, whereas the First Principle is the principle of various activities in various directions and with various ends and is the principle of various entities (al-dhawāt). And, similarly, since it is not aware of its own action, this action does not proceed from it by will or deliberation (lā yaqsudūhu wa lā yurīduhū). But it is evident that the entities, actions, movements and ends which proceed from the First Principle point to an harmony and orderly arrangement. How could therefore such an orderly arrangement and harmony be caused by a natural force which has neither apperception, nor deliberation. Therefore, the First Principle executes His actions by will and deliberation, as well as for a purpose.[2]

Here the question arises: Is the end of His actions external to His essence, or identical with His essence. Like Avicenna, Abū'l-Barakāt accepts the second alternative. This resembles the fact of a

1. Ibidem.
2. Ibid., vol.III, pp.66-67.

physician's curing himself with the exception that to the First Principle occurs no imperfection such as illness etc.[1] Therefore, the efficient cause and the final cause correspond in His essence, In so far as He is the First Agent, He is called the First (al-awwal) and with respect to His being the end, He is called the last (ākhar). However, Abū'l-Barakat differs from Avicenna in that the essential attributes of God such as will, generosity, knowledge rest with the essence of God, in other words they are the properties of God's essence. According to him, God can differentiate between the state of being generous and non-generous. As a result of this differentiation he prefers generosity to non-generosity. Therefore, it is not true to say that there is no difference between God's being generous and not generous. The end of all His actions is, in the last analysis, his generosity, (jūd). His generosity is the source of all existents. He creates, as a result of His generosity, not that He is generous because he creates. Generosity is one of His essential attributes. He rejoices in His generosity which pertains to His essence, and this joy does not come to Him from something other than His essence.[2]

Abū'l-Barakāt is more specific about the nature of the essential attributes of God in another context. There he divides beings into three categories;(a) Essences which are actualized by

1. Ibid.,vol.III,p.67.
2. Ibid.,vol.III,pp.67-69.

possessing a primary existence (wujūduhā hāsilun lidhawātihi husūlan awwaliyyan), (b) acts which proceed from these essences, (c) modes and attributes which subsist in the essences existing in external reality. Their existence, however, does not pertain to the essences in their essences. For example, heat in the fire, cold in the snow, generosity in the generous, are the attributes of this kind. [1]

These three kinds of existents, since they are not necessary per se, must necessarily end in a necessary existent per se. Thàse attributes which proceed from the essence, having no other cause than this essence, are called natural attributes, or specific properties (khāssiyyāt). [2] He considers God's attributes to be of this kind. As for the attributes classified as accidental, for example, heat in the water, are, in the last analysis, indicative of the essential attributes which cannot be separated from the essence of the thing to which they belong. [3]

---

1. Ibid., vol.III, p.100.
2. He explains in this context the meaning of 'nature' as the emanation from the essence through the medium of the essence itself. In this respect there is no doubt that he follows certain Muʿtazilites, e.g., Abū Hāshim, who regarded God's attributes as the modes of His essence. Cf. Shahrastānī, K.al-Milal.., op.cit., p.56; for the Muʿtazilite view see H.A.Wolfson, article in J.A.O.S., op.cit., pp.73-79 and article in Louis Ginzberg Jubilee Volume, op.cit., pp.415ff.
3. K.al-Muʿtabar, op.cit., vol.III, p.101.

All attributes existing in this world must, in the last resort, be referred to God, He being the originative principle of all attributes: Just as the First Existent is the principle of every existent, the First Knowledge, i.e. the knowledge of the First is the principle of every knowledge, and the First Wisdom, i.e., the wisdom of the First is the principle of every wisdom, and the First Will, i.e. the will of the First is the principle of every will. [1]

There exists, according to him, between the attributes of the created things and those of God a certain similarity. This especially stands out in his theory of God's knowledge which will be explained presently.

In Aristotle, there exists a dichotomy between God whose knowledge has itself for its object and the world which exists externally to and separately from God. [2] It may, therefore, be said that Aristotle's God is inactive with respect to the thing outside Himself, whose sole activity being self-intellection. However, the subsequent writers felt the difficulty in isolating God from the world, and tried to render this conception of God's knowledge more acceptable. Among these writers may be cited Avicenna. Aristotle's

1. Ibid., vol.III, p.104.
2. See D.Ross, Aristotle, (London, 1966), p.183; É. Bréhier, The History of Philosophy, (the Hellenic Age), tr. by J.Thomas, (Chicago-London, 1963) p.203.

theory of God's knowledge and its more tolerable version proposed by Avicenna are determined to a large extent by their doctrines of intellection (taʿaqqul). For both Aristotle and Avicenna the highest kind of psychic activity is intellection. In the intellect alone, intellection and the object of this intellection become one. For it is the intellect which has knowledge of itself, and of other things as abstracted from all material attachments, quantity, quality, place and time. In this respect, intellect differs from all psychic faculties which have, in one way or another, connection with matter and with particular circumstances. [1]

In his watered down version, Avicenna, though following Aristotle in the main, concludes from the fact that God is the principle of every existent, that God knows the cause and their corresponding effects. [2] He clarifies his position by saying that God knows the particulars in a universal way (ʿalā nahwin kulliyyin) or in as much as they are universal (min haythu hiya kulliyyah). [3] God's knowledge is not of an inferential kind. It occurs instantaneously (dafʿatan). [4] Everything proceeds from Him as the

1. Avicenna, al-Najāh, op.cit., pp.165 and 178ff.
2. Ibid., pp.247-248; al-Shifāʾ, op.cit., vol.II, p.590.
3. Avicenna, al-Najāh, op.cit., p.247.
4. Avicenna, al-Shifāʾ, op.cit., vol.II, p.591; cf.M.E.Marmura, Some aspects of Avicenna's theory of God's knowledge of Particulars, in J.A.O.S. vol.LXXXII, (1962), p.303.

consequences proceed from a premise, since the consequence is not conceived in time. Avicenna attains this fact drawing an analogy between the human intellect and the Divine intellect. [1]

As in Avicenna, Abū'l-Barakāt's theory of God's knowledge was determined by his psychology. But the difference between them lies in the extent of their application of the Psychological theories to the Metaphysical ones.

As we have already seen, he divides existents into essences, and acts which are consequent upon and concomitant of essences. And the nobility of acts proceeds from the nobility of essences. God, being the most noble of essences, does not reach perfection by means of apprehensions, rather He apprehends the objects of apprehension because He is the perfect being. Therefore it is absurd to say with Aristotle that God's intellection of something other than His essence implies an imperfection in God. [2] Nor is Avicenna right in saying that God's intellection of external things (ashyā') necessitates the fact of His being constituted by the things he intellects. For intellection is one of the activities of the intellect. Activity following upon the essence from which it proceeds, how could something

1. Marmura, op.cit., p.303.
2. K.al-Muʿtabar, op.cit., vol.III, pp.75-76.

be constituted by that which follows from it in time and in essence. [1]

But the fundamental difference between Abū'l-Barakāt and Avicenna stems from Abū'l-Barakāt's identification of all psychic faculties with an immaterial substance which is the soul itself. This is proven by the fact of the evident knowledge provided by self-awareness. It is precisely his appeal to the self-evident truths that plays havoc with the entire Aristotelian theory of different psychic faculties and ultimately the identity between the intellect and the object of intellection in God.

Does multiplicity of things apprehended cause a change in the subject who apprehends? Abū'l-Barakāt's answer to this question is 'No'. According to him, multiplicity does not occur in the essence itself, but in the relations and connections between the things perceived and the subject who perceives. [2] But the relations between the subject and the object is not the same as that obtaining between matter and form. For example, fire which has in reality the quality of burning and snow which has in itself the quality of freezing, when included in our knowledge, have no such qualities. Here, as it

1. Ibid.,vol.III,pp.72-73.
2. Ibid.,vol.III,pp.76-77 and 83.

seems, he draws an analogy, as he does elsewhere, between our knowledge and God's. This is proven also by the fact that our knowledge of our self is a stage in acquiring the knowledge of God. (wa sullam al-maʿrifah li'l-insān birabbihi hiya maʿrifatuhu binafsihi). [1]

On the other hand, the perfection of the First Principle does not mean that He apprehends every object of apprehension, but that he has the power to apprehend every existent object of apprehension. If the object of apprehension does not exist, and the First Principle does not apprehend it as a result, this should not be taken to mean that He is not capable of apprehension. It is, in fact, necessary for him not to apprehend it. For, in this case the imperfection is not in the First Principle Himself, but in the non-existent thing. This is also the case with our apprehensions. Our perfection does not depend on the things we apprehend, but on our capacity to apprehend. [2] The difference between our apprehension and God's is one of degree, God's apprehensions having no limitation.

He sums up his personal reflections on the subject in a special chapter, [3] where he, again, divides the objects of our

1. Ibid.,vol.III,pp.98-99.
2. Ibid.,vol.III,p.75.
3. Ibid,vol.III,Treatise I,Chapter XVII,pp.88-93

apprehensions into (a) those which exist in the concrete and into (b) those which exist in the minds (adhhān). He again proceeds to draw an analogy between our knowledge and God's. He says, 'the spiritual beings which we are not able to perceive with our sensory organs (ālāt) may be perceived and known by us by means of an inferential knowledge as if we see and know them with our eyes. And there is no harm in inferring from this that God knows all existents in a similar way'. [1]

Mental forms which are included in the second category mentioned above, areealso divided into two categories: (a) those which are caused by the existents in external reality, and (b) those that are causes of external objects. In this category is, for example, the mental form of an anklet which is in the soul of a goldsmith, who is the cause of the existence of the anklet in the concrete. The forms existing in the Divine world are of this kind. It is for this reason that Plato affirms of the ideas and the moulds. Why should it not be so, since they are the true prototypes. And God's knowledge should be conceived in this connection. [2]

---

1. Ibid.,vol.III,p.88.
2. Ibid.,vol.III,p.93.

Having established Abū'l-Barakāt's theory of God's knowledge, we can now proceed with his theory of creation (khalq), both being inseparable from each other.

In Avicenna, the division of beings into possible and necessary ends up with the relation between these two concepts, which is called creation. Following in the footsteps of Aristotle, he contributes to the view that nothing comes out of nothing and that there must therefore be something existing in all eternity for the necessary existent to work on. This something is matter in potentiality. [1] God is the Giver of Forms (wāhib al-suwar) through the intermediacy of the active intelligence (al-'aql al-fa''āl).[2] Although potentiality precedes actuality in this world of corruption and generation (al-kawn wa'l-fasād), in relation to the intelligible world which is always in actu, it is posterior to actuality. [3] Therefore, in the hierarchy of being, matter comes last. [4] God, first, originated the intelligible world, and then, through the instrumentality of this world He originated the world of generation and corruption. [5]

1. Avicenna, al-Najāh, op.cit., p.252.
2. Ibid., p.283.
3. Ibid., p.220; al-Shifā', op.cit., vol.II, pp.477-479.
4. Avicenna, al-Najāh, op.cit., p.208.
5. Ibid., pp.280-284; al-Shifā', op.cit., vol.II, pp.624-625.

Creation is explained by Avicenna in terms of a necessary procession from God in various stages. God, Himself being one in every respect, originates directly only one being which is possible in itself, and necessary through the First. It is in this stage that multiplicity begins. Contemplating God through which it is necessary, it originates another being which is called intelligence as in the case of the First Caused (al-ma'lūl al-awwal). Contemplating its essence which is possible in itself, it originates two things; the matter of the highest celestial sphere and the soul of this sphere. This tripartite procession goes on till it ends in the last of ten intelligences, which is called the Active Intelligence. The number of intelligences is limited to ten because the intelligible world is formed of ten celestial spheres. [1]

Abū'l-Barakāt's first task is to eliminate the Neo-Platonian notion of emanation. His criticism of this view consists (a) of Aristotelians' deviation from the fundamental principle that from one, one can only proceed, since, according to them, from the First Intelligence not one, but three proceeds [2], and (b) of their confining the celestial intelligences to some definite number such as ten [3], and

1. Ibid.,pp.276-280.
2. K.al-Mu'tabar,op.cit.,vol.III,p.156.
3. Ibid.,vol.III,p.158

(c) of their disregard for the natural, animal and vegetable elements, and (d) of whether the revelation or a transmitted tradition was their source, [1] and finally (e) of the rectilinear scheme of emanation proposed by the Aristotelians. [2]

Having mentioned the Aristotelian theory of emanation, Abū'l-Barakāt wonders why they (Aristotelians) do not say that God is generous, therefore He had knowledge and as a result of this knowledge He created, and in consequence of His creation he had knowledge. If they held this view, there would be no need for a second cause, and multiplicity of existents would proceed from God's essence in virtue of His essence, and consequently they would avoid confining God's creation to one being alone. [3]

God has willed, in a general way, the actualization of every possible thing subsisting in a mental representation, and in predetermination according to His predetermining and accomplishing it. He has willed the eternal for the sake of the eternal, temporal for the sake of the temporal, prior for the sake of the posterior, the individual for the sake of the preservation of the species, and the species for the sake of the individual in order that the latter may

1. Ibid.,vol.III,p.158.
2. Ibid.,vol.III,pp.161-163.
3. Ibid.,vol.III,p.159.

exist actually. From some of the existents emanates other things whose agent is God in virtue of His essence. And He makes things created by Him serve as if they were instruments and cause either with regard to these things proceeding from Him or with regard to their being required by His wisdom. All this is ordered according to His First Will (irādatihi al-ūlā) and always particularized (bi-tafṣīlin) by many volitions in accordance with many requirements and time. It does not follow from this that one can only proceed from the One. [1]

The emanation from God is, for him, like the rays proceeding from the sun. [2] It is in every direction, not as the Aristotelians say in one direction, that is rectilinear. The very same comparison is made by Plato and Plotinus[3] in their explanation of the Ultimate Good and the Absolute One respectively.

It appears that Abū'l-Barakāt's position was partly determined by the fact that there exists indefinite number of beings in the world, none of which being the cause of one another. For example,

1. Ibid.,vol.III,p.160.
2. Ibid.,vol.III,p.163.
3. The Cambridge History of Later Greek and Early Medieval Philosophy, ed.by A.H.Armstrong,(London,1967),p.240.

man cannot be the cause of horse. This cannot be explained by the series of causes and effects proceeding in one direction from the First Principle. [1] But the most important factor determining his position is that he transfers his human psychology into the domain of Metaphysics. He arrives, as we have already seen, at this position by drawing an analogy between man and God. By doing so, he gives God an extensive freedom of action such as causing the winds to blow, resuscitating one individual and causing the death of another, responding to a prayer and redressing a wrong. [2] Taking this statement at its face value, can we say that God has an absolute freedom of action as the Theologians assert? But before settling this question, we must say something about the nature of creation. Is it an eternal creation or a temporal one?

The problem of the eternity of the world is given a large space in Kitāb al-Muʿtabar, this being, to a great extent, due to the popularity of the problem among the Falāsifah and the Mutakallimūn. Abū'l-Barakāt cites the arguments and the counter-arguments, in so far as the eternity and temporal production of the world is concerned. Yet he refrains from giving his personal opinions on the subject. This is understandable in view of the fact that those philosophers who affirmed

1. K.al-Muʿtabar,op.cit.,vol.III,p.151.
2. Ibid.,vol.III,pp.159-160

of the eternity of the world faced the charge of irreligion from the orthodox circles in Islām. However, there are strong indications that he believed in the eternity of the world. Instead of giving a full details of the arguments and the counter-arguments on the question under discussion we shall confine ourselves to the enumeration of these indications.

1. God's generosity is related to His act of creation by Abū'l-Barakāt. His creation is the outcome of His generosity. There was not a time when God was not generous. This point of view, when compared with the argument well-known as "Proclus' difficulty" in Islamic philosophy, namely that because the Creator of the world exists from all eternity, and is always all-powerful and generous, free from impotence and cupidity, possessing neither rival to obstruct His action, nor associate in creation, the created world exists simultaneously with Him, may be cited as one of the clear indications pointing to the eternity of the world. [1]

2. Abū'l-Barakāt holds that there exists two kinds of priority; (a) temporal priority, and (b) casual priority, or priority in essence following the traditional philosophy. This is also exemplified by the distinction he makes between eternal (azaliyyāt) and temporal beings.

1. Ibid.,vol.III,p.28.

It may therefore be inferred that he contributes to the argument that priority of God to the world is a casual one. [1]

3) In treating of natural sciences, we have seen that he unconventionally accepts the infinity of space. The statement that our minds cannot, in its very nature (bi-fitratihā), doubt the eternity of space, is in keeping with his own view on space. [2]

4) Between his statement against the Avicennian doctrine of God's knowledge that if God does not know the particular things, because this entails the fact of His being the substratum for these things, in a similar manner, God cannot know His essence for fear that He might be a substratum for His essence, and the statement of those who believe in the eternity of the world, namely, that the remotion of God from being a substratum for derivative wills (lāḥiq) entails also His remotion from being a substratum for His First Will [3], there is more than a similarity.

5) His view on time which he identifies with eternity, also points to the theory of the eternity of the world. [4] That he attributes to the believers in temporal creation, the view that time, being the

---

1. Ibid., vol.III, pp.49 and 160.2
2. See our treatment of his doctrine of space; K. al-Muᶜtabar, op.cit., vol.III, p.48.
3. Ibid., vol.III, pp.98 and 45.
4. We shall deal with his theory of Time later.

measure of motion, was created simultaneously with the world, which view he refutes [1], may be cited as another point in favour of His belief in the eternity of the world.

Now let us revert to the problem concerning God's volition, more particularly God's knowledge, since, as we have seen, His volition or the volitions in general are determined by knowledge resulting from mental representation and apprehension. Abū'l-Barakāt expatiates on this point, when treating of the problem of qadā and qadar.

Abū'l-Barakāt starts out by giving the definitions of these two terms commonly accepted among the Falāsifah and the Mutakallimūn.[2] Qadā is the immutable decision of God with regard to events occurring in the world of generation and corruption and to what occurs as a result of the movement of the celestial spheres or the stars. In this sense, qadā is the universal decision of God. As for qadar, it is the particularization of this decision according to particular circumstances, time, place, quantity and quality. Therefore, qadar is the detailed account of qadā. The definition of these two terms along the same lines are found in K. al-Shifā' of Avicenna.

1. K.al-Muʿtabar,op.cit.,vol.III,p.30.
2. Ibid.,vol.III,p.180;Avicenna,Ishārat,op.cit.,p.185.

Abū'l-Barakāt cites three factions who are opposed to each other on the question of qadā and qadar: (a) those who held the view that God's immutable decision and its particularization comprehends every single event in this world, (b) those who adhered to the view that though God's prescience comprises every single event, the religious prohibitions and commandments are outside the scope of God's foreknowledge. [1] This is evidently the opinion of the Mu'tazilites who assert that man has a free choice as far as these commandments and prohibitions are concerned, otherwise they would have no meaning at all, (c) Those who referred everything to change. This group, according to him, did not believe in the existence of God. [2]

Relating to his own view, Abū'l-Barakāt sets limit, as he has already done, to God's knowledge. According to him it is impossible even for God's knowledge, as for man, to embrace every event which happens in its particularity now, and has already happened in the past and will happen in the future. This in no way entails imperfection in God's knowledge, nor does it mean to attribute impotence to Him. For the obstacle (māniᶜ) to such knowledge is not found in the knower, but in the infinity of things He would have to apprehend. [3] It appears that the analogy that what is true of man with respect to his

1. K.al-Muᶜtabar,op.cit.,vol.III,pp.181-182.
2. Ibid., vol.III,p.183.
3. Ibid.,vol.III,pp.187 and 193f.

soul is, in an intensified degree, true of God plays an important and role in the formulation of this notion as well as of others.

The events which happen in a uniform manner in all times and places are known by God with a pre-eternal knowledge (ʿilman azaliyyan). But it is not so with matters dependent upon volitions (al-ʾumūr al- irādiyyah). For they vary according to individuals, time and circumstances, in so far as motives and deterrents are concerned, and these variations cannot be defined or delimited. Therefore these matters cannot be known by any one knower (lā yuḥītu bihi ʿilm ʿālim wāḥid), nor are they subject to qadā and qadar. [1]

On the question of will in general, he argues against the view that the motion of the spheres are the only cause of volitions. He says other causes such as the knowledge acquired from particular circumstances, the motivating effect of other volitions, and things preserved in memory when remembered are in play. In a similar way, he attributes volitions to God and to His angels which does not correspond exclusively to the motion of the celestial spheres. [2]

---

1. Ibid., vol.III,p.187.
2. Ibid.,vol.III,pp.190f.

By arguing thus he may have had in mind the notion that neither God, nor man have free-will in the absolute sense.

Chance-events or occurrences due to chance are also outside the scope of God's and man's knowledge. Abū'l-Barakāt attempts to give a clearly defined notion of chance-events. This is not new. Chance is treated by Aristotle, but in him it is not so clearly defined as in Abū'l-Barakāt. According to T. Gomperz's [1] formulation, for Aristotle, chance signifies, as a rule, the concurrence of two events bound by no causal relation, but yet presenting the appearance of such a bond. Aristotle illustrates chance by two examples: (a) a creditor who is pressing for payment of a debt, but obtains it unexpectedly, and by chance, when, having gone to the market on quite other business, he there lights on the debtor with the requisite sum in his possession, (b) a horse which has lost its rider in the battle and in the evening of the same day, driven by hunger, thirst or instinct, returns to the camp, and is restored to its owner. Such statements as this, or its Neo-Platonian versions may have been Abū'l-Barakāt's starting point. However, his treatment of the subject is entirely different. Although such chance events attract Aristotle's

1. Theodor Gomperz, The Greek Thinkers, tr. by G.G. Berry, vol. IV, (London, 1964), pp. 95-98.

attention, he never tends to break with the traditional view that nothing happens by chance. It may therefore be said that, for Aristotle, chance is due to a cause unknown to us. Abū'l-Barakāt, on the other hand, accepts the reality of such events and applies himself to finding out the elements underlying the notion of chance. He explicitly states that chance is either due to a combination of some volitional causes with others, or of some volitional causes with some natural ones; this combination being determined by no-one. For example, Zayd went out of his house and walked in a definite direction. And a scorpion started out from the right in such a way that at one point they both would meet if Zayd walked at a moderate gait. Then it either happens that Zayd treads on the scorpion and kills it, or that the scorpion stings him. Here, neither Zayd, nor the scorpion acted deliberately or by nature. Nor were they set in motion by someone else deliberately so that they both would meet. However, this can be done by God, if, when and as He will (shā'a). [1] If it is asked whether God's deliberation is universal and directed to all the portions of existence, for example, to every encounter of one speck of dust with another,

1. K.al-Mu'tabar.,op.cit.,vol.III,pp.188-189.

whenever and wherever this happens, the answer must be 'no', because this is impossible in itself and not because of impotency on the part of God.

The encounter of two specks of dust implies a third cause for chance-events, i.e. the combination of two independent natural causes.

Such statements as God can cause the encounter of two specks of dust if, when and as He will, can only be explained by God's attention towards, and interest in the events.

Abū'l-Barakāt's angelology [1] is closely connected with his criticism of the Active Intelligence. As we have seen, the Active Intelligence which is also called the Giver of Forms is, according to Aristotelians, the sole cause of the multitude of souls. For Abū'l-Barakāt, the diversity between the souls as to their substance, species and fundamental nature is far too obvious to allow of only one single existentiating cause (al-ʿillat al-mūjidah). [2] But this must not be taken to mean that there are a multitude of existentiating causes, since, according to him, the sole existentiating cause of all that which comes to be is God in whom everything inheres as mental forms, which are identified by him

1. M.Abī Rayyān,op.cit.,pp.41-45.
2. K.al-Muʿtabar,op.cit.,vol.III,p.152 and vol.II,p.394.

with the Platonian ideas.[1] There remains, therefore, the active intelligence being the perfecting cause. This is also inadmissible, according to him, in view of the diversity obtaining between the human souls. On this point, Abū'l-Barakāt wavers between two opinions. In the Physics of the K. al-Muʿtabar, he accepts the view that souls can attain perfection by themselves without the help of someone else.[2] However, in the Metaphysics he deviates from this view and finally concedes to the view that for every group of souls belonging to the same species there must be an instructor or a guide.[3] These spiritual guides or instructors are identified by him with 'angels'. These intelligible beings are pure spiritual substances, free from matter. They dwell in the highest sphere which is called the 'angelic world' or the 'divine world' and are distinguished according to their degree of intensity (shiddah) and spiritual perfection.[4] Therefore, it may be said that, according to him, the source of plurality lies in the kingdom of spiritual angelic entities. It is the angels who initiate the human souls into knowledge, protects, guides, comforts them, brings them into final victory and who are called the Perfect Nature by those who had the gnosis of direct vision. (maʿrifat al-mushāhadah)[5]. The number of angels are equal to the

1. Ibid.,vol.III,pp.92 and 144.
2. Ibid.,vol.II,p.411.
3. Ibid.,vol.III,pp.152-153.
4. Ibid.,vol.III,p.155.
5. Ibid.,vol.II,p.391.

number of sensible species - be they celestial or terrestrial. They are the retainer or the preserver of the forms of these species.

As in the traditional philosophy, he identifies angels with the visible and invisible stars and with the perceptible and imperceptible spheres, but he does not discard the possibility that their number may exceed the number of these stars and spheres in order that they may equal the number of the sensible objects - animate, inanimate, or vegetable. [1]

As a result of his own Theory of angelology, he reduces the role of the angels to the preservation of forms and to guidance. Therefore, the appellations 'The Giver of Forms', given by Aristotelians to the Active Intelligence has no place in Abū'l-Barakāt's theology.

---

1. Ibid., vol.III, p.167.

SECTION II

TIME

Time.

Time, as we use it in our everyday language, is self-evident, and no one doubts its existence. But when we try to know its quiddity and essence, all explanations and attempts must fail. In this attempt, all the paradoxes inherent in the concept of time manifest themselves. As Sextus Empiricus, when criticising the various definitions of time, says, "if we rely on appearances, time seems to be something, but if we depend on the various arguments about it, it appears to be unreal." [1] St. Augustine is aware of the difficulty in giving a satisfactory answer to the question 'what is time?'. He says, 'What, then, is time? If nobody asks me, I know; but if I try to explain it to one who asks me, I do not know'. [2] In modern philosophy Whitehead reflects the same difficulty when he says, 'It is impossible to meditate on time and the creative passage of nature without an overwhelming emotion at the limitations of human intelligence.' [3] Therefore, no attempt is final in explaining the nature of time.

Time is generally considered as a passage and as something ever-renewing itself, never remaining the same. How, then, does something constituted of successively fleeting 'nows' which are, in

1. Sextus Empiricus,Adv. Math.,X,169;see also A.H.Chroust,The Meaning of Time in the Ancient World,in the New Scholasticism,(Jan.,1947), p.50.
2. St. Augustine,Confessions, XI,14.
3. Whitehead,The Concept of Nature,(Cambridge,1920),p.73.

themselves, without extension and consequently have no actual existence exist? Many seized upon this point in order to prove the unreality of time. This and other difficulties concerning the reality and unreality of time were made the subject of a discussion by Avicenna, [1] and later by Fakhr al-Dīn al-Rāzī. [2]

Difficulties concerning the reality and unreality of time -

Avicenna, in his systematic treatment of the subject in which he mainly follows Aristotle, makes mention of two factions: One group, according to him, accepted the unreality of time, though others held the contrary view. The former group he further divides into those according to whom time has no external existence whatsoever, and into those who granted a kind of existence to time, not because it exists in external reality in any way, but because it exists in the estimative faculty (ʾAmr mutawahham).[3]

Those who denies existence to time are known as the Sceptics (4th Century, B.C.). The representatives of this philosophical school are Pyrrho, Arcesilaus, Carneades, and Sextus Empiricus. They questioned the possibility of objective knowledge of reality. As in

1. Avicenna, al-Shifāʾ, op.cit., vol.I, pp.67-72.
2. Fakhr al-Dīn al-Rāzī, al-Mabāḥith al-Mashriqiyyah, (Hyderabad, 1343H.), vol.I, pp.642ff.
3. Avicenna, al-Shifāʾ, op.cit., vol.I, p.68; cf. Aristotle, Physics, IV, 10, 217b.

other problems, they set themselves the task of proving the paradoxical nature of our knowledge of time. The difficulties mentioned both by Aristotle and Avicenna are indicated by Sextus Empiricus [1] who subjects to criticism various views on time propounded by different philosophers. The Sceptics found their arguments for the unreality of time on the fact that time has no existence in the 'now'. They argue that if time existed it would either be something divisible or not divisible. If it were indivisible, it would not be possible that years, months, hours, past and future should proceed from it. [2] But if it were divisible, it would either exist with all its parts or with some of them. The first alternative is absurd, because, then, past and future time would exist simultaneously. The second alternative is also absurd, because no parts of time exist actually. Supposing, however, that the 'present' actually exists, then it would either be divisible into past and future which were shown to be non-existent, or it would be indivisible and called 'now' and not time.

1. Sextus Empiricus, Adv.Math., X, 169ff.; cf. Chroust, op.cit., pp.50-57.
2. Avicenna, al-Shifā', op.cit., vol.I, pp.68f. There exist variations between Avicenna and Fakhr al-Dīn al-Rāzī who says that if time were indivisible, there would be no difference between the time of the event which has occurred to-day and that of the event which occurred at the time of inundation; and between Avicenna and Aristotle who argues that if what is before and what is after are in the same 'now', things which happened ten thousand years ago would be simultaneous with what has happened to-day. There also exists a difference between the account of Avicenna and that of Sextus Empiricus, though the point they want to make is substantially the same. al-Rāzī, op.cit., pp.642f.; Aristotle, Physics, IV, 10, 218a, 25-30.

In any case it can not exist actually. But if 'now' exists actually, it must either endure or become non-existent. If it endures, then one part of it is prior and the other posterior. But both together do not constitute the 'now', since past and future would then be in one 'now' which is absurd. If it becomes non-existent, this must either happen in and adjoining now there intervening no time between them, or in a now there intervening a time between them. If the second alternative is accepted, there follows the fact that the 'now' in time has a duration which we have already disproven. If it becomes non-existent in an adjoining now there intervening no 'time' between them, one 'now' will follow the other continually, but this is one of the things which those who affirmed the existence of time denied.[1] Consequently there is no way out of this difficulty.

This argument is supported by another argument of a different kind which comes very close to C. D. Broad's objection to Aristotle because the latter considered time as a quality of events. Broad says, 'We can not reduce changes of time to changes in time, since time would then need another time to change in, and so on ad infinitum.'[2] The gist of the argument mentioned by Avicenna and Al-Rāzī is this: Every motion must have a specific time, as it has a specific place. Supp-

1. Avicenna, al-Shifā', op.cit., vol.I, pp.68-69; cf. Aristotle, Physics, IV, 10, 218a, 3-30.
2. C.D. Broad, Scientific Thought, (London, 1923), p.65.

osing that certain motions took place at the same time, all these times would need another time to comprehend them, and so on ad infinitum. In this case, an infinite number of times would imply an infinite number of motions, time being consequent upon motion; an infinite number of motions would imply an infinite number of movables, motion depending upon the movable; and an infinite number of movables would imply an infinite number of places, every movable inhering in a place. But this is absurd because an infinitude of dimensions is impossible.[1]

Another faction who denied external existence to time are those who believed that time has existence only in the estimative faculty. In holding this view, they were urged by the above mentioned difficulties on the one hand, and by the necessity that time should have some kind of existence on the other. As we have seen, according to Ibn Sīnā, this faculty perceives the meaning of the particular sensible objects and helps to differentiate between the right inferences and the wrong ones. Our beliefs and judgements are related to this faculty.[2] Judgements formed by this faculty are, according to Ibn Sīnā, generally unreliable. It is, therefore, in the estimative that the form of

1. Avicenna, al-Shifā', op.cit., vol.I, p.69; al-Rāzī, op.cit., vol.I, p.643.
2. M.Wali-ur-Rahman, The Psychology of Ibn Sīnā, in Islamic Culture, vol.IX, (Hyderabad, 1935), p.354; see also S.Pines, Nouvelles Études.., op.cit., pp.47-50.

the motion which has taken place between the two points is perceived as a whole, and consequently the notion to measure this passage is formed in this faculty.[1]

The difficulty which derives from the grammatical analysis of the instant (waqt) is manifested in the view that time is a mere aggregate of instants (awqāt). When, for example, we say that such and such an event will occur two days later, we mark an instant, because it announces an imagined event by means of a well-known event, namely, after the sun has risen twice. Time is, then, according to this view, the aggregate of such instants determined by the relation between two events, one imagined and the other well-known.[2]

Those who accepted the reality of time regarded it as an eternal substance existing necessarily (wājib al-wujūd). This view was held by Iranshahrī and Abū Bakr Zakariyyā al Rāzī. As we shall deal with this view later, we shall mention their argument briefly. According to them, every attempt to remove time must in fact establish its reality, since such removal would imply either a prior or a posterior period of time. From this they infer that time must be eternal and exist necessarily by itself, without depending on motion.

1. Avicenna, al-Shifā', op.cit., vol.I, pp.69-70.
2. Ibid., vol.I, p.70; al-Rāzī, op.cit., vol.I, p.647; see also Louis Massignon, Time in Islamic Thought, in Man and Time, (Papers from the Eranos Yearbooks), ed.by J.Campbell, (London, 1958), p.111.

They, then, go on to distinguish between absolute time (dahr) and limited time. Absolute time is that which is abstracted from motion, whereas relative time is that which exists together with motion, in which respect it is the measure of motion. [1] We see here a reconciliation between two concepts which were sharply distinguished by the Aristotelians.

Various Untenable Definitions of Time -

Various attempts to give a satisfactory definition of time were made in Antiquity. Avicenna subsumes them under four categories: (a) Time is identified with motion, (b) Time is the motion of the celestial sphere (ḥarakat al-falak), (c) it is one complete revolution of the celestial sphere, (d) it is the celestial sphere itself. [2] As it appears, the first three definitions of time are substantially the same in that they all identify time with motion.

Those who held the first view argued that among the existing things around us motion is the only thing which is divided into past and future. That which has this description must be time. They

1. Avicenna, al-Shifā', op.cit., vol.I, p.70; al-Rāzī, op.cit., vol.I, pp.651-652.
2. Avicenna, al-Shifā', op.cit., vol.I, p.70; cf. Aristotle, Physics, IV, 10, 218b, 30f. and 5-20; Sextus Empiricus, Adv. Math., X, 170ff.; see also for Sextus Empiricus, Chroust, op.cit., pp.50-51.

further said that time exists only when we perceive motion. When, for example, we are distressed, we find the time hanging on because motion lingers on in our memory owing to such distress. But in a state of happiness, motion passes away quickly in our recollection. He who is not aware of motion is not aware of time. This was just the case with the Companions of the Cave. They had no consciousness of the intervening time when they woke up. In Aristotle this is exemplified by the fabled sleepers of Sardinia. Avicenna mentions Aristotle as saying that Aristotle's fabled sleepers are historically before the Companions of the Cave. (Aṣḥāb al-kahf).[1] Avicenna in al-Najāh,[2] and Aristotle in Physics,[3] cite this example for a different purpose. Their aim is to prove the connections between time and change, not to identify time with motion.

Following Aristotle, Avicenna refutes this argument, saying that there exists a difference between time and motion. Motion may be fast or slow, whereas time is uniform and it can only be short or long. Two motions may occur at the same time, whereas two times cannot be simultaneous. On the other hand, such expressions as "huwadhā" (immediately), "baghtatan" (all of a sudden), 'now' and 'previously' cannot be related to motion.[4]

1. Avicenna, al-Shifā', op.cit., vol.I, p.70; cf. al-Rāzī, op.cit., vol.I, p.653.
2. Avicenna, al-Najāh, ed. by Kurdī, (Cairo, 1357/1938), p.116.
3. Aristotle, Physics, IV, 11, 218b, 20-25.
4. Avicenna, al-Shifā', op.cit., vol.I, p.71; al-Rāzī, op.cit., vol.I, p.653; cf. Aristotle, Physics, IV, 11, 218b, 15-20.

The second view, according to Simplicius, was wrongly attributed to Plato by Eudemus, Theophrastus, and Alexander. Simplicius argues that Plato, like Aristotle, held time to be only the measure of motion.[1] Those who held that time is the prime motion of the celestial sphere (ḥarakat al-ʾūlā al-falak) believed that it is the fastest of motions, since the highest celestial spheres traverses a longer distance than the other celestial spheres during the same interval of time. According to Avicenna this simultaneity indicates something other than the celestial motions. Rather it indicates an entity to which all celestial motions are related. This entity, namely time, is, therefore, essentially different from the celestial motions.[2]

In the same vein, Avicenna eliminates the view that the concurrence of two events, one being well-known and the other imagined, is indicative of and identical with time.[3]

The identification of time with one complete revolution of the celestial sphere is refuted by Avicenna, as also by Aristotle, by the fact that every part of time is time, whereas a part of the revolution is not a revolution.[4]

---

1. H.A.Wolfson,Crescas' Critique of Aristotle,op.cit.,pp.634-635.
2. Avicenna,al-Shifāʾ,op.cit.,vol.I,p.71.
3. Ibidem.
4. Ibidem;cf.Aristotle,Physics,IV,10,218b,1-5.

Simplicius reports that the Pythagoreans held that time is the sphere itself. He is also of the opinion that the Pythagoreans probably derived this notion from the assertion of Archytas who said that the universal time is the interval of the nature of the universe.[1] Aristotle holds this view to be too naive to require a refutation.[2] Later, the Neo-Platonist Plotinus offers a summary of refutation of this view, saying that this can hardly be true if time is not the motion of the sphere, since it was thought to be the sphere on account of the motion.[3] Avicenna and al-Rāzī's refutation is somewhat different. Both argue that their view depends on the premise that everything inheres both in the sphere and in time. But this premise is wrong for the fact that the sphere itself is also in time, whereas the sphere is not in another sphere.[4]

The above mentioned definitions of time are variously found in Antiquity, Neo-Platonists, and in Muslim and Jewish philosophical literature. Aristotle mentions two untenable views held by the earlier writers: (a) Time is the motion of the whole, (b) It is the sphere itself.[5] The former view is generally accepted to be that of

1. H.A.Wolfson,Crescas' Critique..,op.cit.,p.635.
2. Aristotle,Physics,IV,10,218b,4.
3. Plotinus,Enneads,III,8,20.
4. Avicenna,al-Shifā',op.cit.,vol.I,p.71;al-Rāzī,op.cit.,vol.I,p.653.
5. Aristotle,Physics,IV,10,218b,1.

of Plato. This is a controversial point. Since the cosmological motive plays an important role in Plato's philosophy both the above definition and the Aristotelian one are inherent in his philosophy. According to him, the celestial movements not only measure time, but also actually constitute it. [1]

The Sceptic, Sextus Empiricus [2] mentions the earlier views, and subjects them to a pungent criticism. He mentions (a) the Stoic view that time is the interval of the motion of the whole, (b) the view attributed by some to Plato that it is the actual motion of the universe, (c) the Aristotelian view that it is the number of 'before' and 'after' in motion, (d) the Aristotelian, Strato's view that time is the measure of motion and rest, (e) the Epicurean view that it is a contingent product of contingent products, (f) Aenesidemus' view that it is corporeal.

Plotinus [3] mentions three views, namely, that (a) time is motion, (b) it is that which is moved, and (c) it is something pertaining to motion.

In the philosophical encyclopedia of the Ikhwān al-Ṣafā, we encounter the mention of four views, namely (a) the popular view that time is the passage of years, months, days and hours, (b) it is the

---

1. Plato, Timaeus, 37e, 1ff; 38b, 6ff; 39b,2ff; see also F.Solmsen Aristotle's System of the Physical World, (Ithaca&New York,1960) p.145.
2. S, Empiricus, Adv.Math., X, 170ff; see also Chroust, op.cit., pp.50-53.
3. Plotinus, Enneads, III,7,6.

number of the repeated motion of the celestial sphere, (c) it is the duration numbered by the motions of the celestial sphere, and (d) time does not belong to the realm of existing things. [1]

The Jewish philosopher al-Tabrizī mentions four views: (a) time exists in itself, is neither a body nor anything belonging to body, but is something which has necessary existence in virtue of itself, (b) it is the duration which becomes numerically determined by the motion of the celestial sphere, (c) it is the body that encompasses all the bodies of the universe, namely the celestial equator (dā'irah)mu^{c}addil al-nahār), and (d) it is the motion of the celestial equator. [2]

Abū'l-Barakāt differentiates ten views: (a) time is a term without meaning (Innahu ism lā ma^{c}nā lah), (b) it has an entity perceived by the senses, namely motion, (c) it is not perceived by the senses, but is conceived in the mind as the measure of motion (miqdār al-harakah), (d) it is a substance, (e) it is an accident, (f) it is neither substance nor accident (g) it exists, (h) it does not exist, (i) it has a permanent existence, (j) it has an unenduring existence (lahu wujūdan ghayr qārr). [3]

1. Rasā'il Ikhwān al-Ṣafā,(Beirut,1376/1957),vol.II,p.17.
2. Wolfson,Crescas' Critique..,op.cit.,pp.635-636.
3. Abū'l-Barakāt,K.al-Mu^{c}tabar,op.cit.,vol.III,p.36.

I. The Aristotelian View[1] of Time -

a) Time and Motion.

Two motions within the same distance and at the same velocity take place simultaneously, but with a different velocity one traverses less and the other longer distance as in the same period of time. Or one may start earlier and the other later at the same velocity, and the former, then, reaches the terminating point before the latter in the same period of time. Therefore there exists the possibility of their moving with greater, equal or less velocity, and consequently of their traversing longer, equal or less distance. This possibility has a corresponding measure and is connected with motion. This measure may be that of distance, or that of the movable. It can not be the measure of distance, for otherwise equal distances would always be traversed at the same time. It can not be the measure of the movable either, for, otherwise, with the increase and decrease of this measure, there would be a corresponding increase or decrease of the movable. Then it is neither the measure of that which is moved nor that of distance. On the other hand, it is commonly known that this measure is not the motion itself, nor is it the fastness or slowness. Similarly it cannot subsist by itself, since it is liable to

1. For the detailed analysis of Aristotle's view of time see J.F. Callahan, Four Views of Time in Ancient Philosophy, (Cambridge, Massachusattes, 1948), pp. 38-86.

elapse, and everything which is liable to elapse is corruptible (fasād). Therefore this measure needs a substratum. We have already shown that its prime substratum cannot be the matter of the movable. It must, then, inhere in a substratum through the medium of a disposition. It is not the measure of a permanent disposition following matter. It is, then, the measure of an unenduring disposition, namely motion. [1] In this connection Avicenna mentions the Companions of the Cave.

Ibn Sinā is very emphatic on the fact that time has no connection with rest, nor does it measure it except accidentally (ʾammā al-sukūn fa'l-zamān lā yataʿallaqu bihi wa lā yuqaddiru ʾillā bi'l-ʿarad). As we have seen, both in Avicenna and Aristotle, rest is not the absolute privation of motion. Something is said to be at rest when it is deprived of motion, though it is capable of motion. It is, therefore, this kind of rest which is measured by time. [2]

Motion is divisible into prior and posterior. Prior and posterior are manifested in distance by means of motion, since prior and posterior in motion are irreversible, though it is not so in distance.

1. Avicenna, al-Shifāʾ, op.cit., Vol.I., p.72; cf. al-Najāh, op.cit., pp.115-116.
2. Avicenna, al-Shifāʾ, op.cit., Vol.I., p.80; ʿUyūn al-Ḥikmah, ed. by A. Badawi, (Cairo, 1954), p.28., cf; Aristotle, Physics., IV., 12, 221b, 5-20.

In so far as motion possesses prior and posterior, it is numerable. It is this numerable aspect of motion that is called time. Therefore time is the number (ᶜadad) of motion in so far as the latter is divided into prior and posterior. Motion and time are, according to Ibn Sīnā, inseparable; time would not exist without motion, and motion without time.[1] As in Aristotle, motion implies every kind of change. Ibn Sīnā even goes so far as to say that the natural bodies (al-jism al-ṭabīᶜī) are in time not in virtue of their essences but because they are in motion.[2]

b) Time as Measure and as Number.

Aristotle generally uses in his definition of time the term 'number'[3] and occasionally the word 'measure'.[4] His use of the term 'number' was made the subject of criticism. His disciple, Strato of Lampsacus argues that any number as such is definite and finite quantity; time, however, is a continuous and, hence indefinite quantity or relation which for this very reason cannot be counted in the same manner as we count, for instance, finite and definite numbers.[5]

1. Avicenna, al-Shifāʾ, op.cit., vol.I, p.73.
2. Ibid., p.80; ᶜUyūn al-Ḥikmah, op.cit., p.28; cf. Aristotle, Physics, IV, 12, 221b, 25-30.
3. Aristotle, Physics, IV, 11, 219b, 1-2.
4. Aristotle, Physics, IV, 12, 220b, 15.
5. Chroust, op.cit., p.37.

In Muslim Philosophy, the Ikhwān al-Ṣafā, among the various definitions of time, cite the one which conforms to the Aristotelian definition, namely, that it is the number of the motion of the celestial sphere.[1] Al-Kindī has the definition that time is the number which numbers motion. He, however, specifies what he means by number in this context. According to him number has two aspects. It is known to be either discrete or continuous,(muttaṣil). Time, he says, cannot be a discrete quantity, then it must be a continuous quantity.[2]

Ibn Sīnā, in his earlier work, K.al-Shifā' uses both 'number' (ʿadad) and 'measure' (miqdār) in his definition of time. However, according to him, time is a continuous quantity. Time numbers motion by means of prior and posterior in it. Therefore, time numbers according to that which is numbered, namely,the prior and posterior in motion. Time is not a number in the way an abstract number is , for example ten.[3]

The reason for calling time as the measure or the number according to prior and posterior is that prior and posterior endows time with number or with a measure. Prior and posterior are, ~~on the~~

1. Rasā'il Ikhwān al-Ṣafā,op.cit.,vol.II,p.36.
2. Rasā'il al-Kindī al-Falsafiyyah,ed.by Abū Rīdah(Cairo,1953),vol.II, p.34.
3. Avicenna,al-Shifā',op.cit.,vol.I,pp.74 and 78;cf.Aristotle,Physics, IV,12,220b,10-20.

on the other hand, determined in relation to the present 'now'. In this respect 'now' is considered as the unit which numbers time. Avicenna, in his later books, such as al-Najāh [1] and ʿUyūn al-Ḥikmah, [2] drops the word 'number' and uses instead 'measure'. This is, I think, to show that time is continuous, and what is continuous cannot be numbered, but only measured.

c) Time and the Now.

As we have already indicated, for Avicenna, as for Aristotle, time, distance and motion are corresponding entities: Continuity is predicated of them. Time, being continuous (muttasil) has a limit (ḥadd) perceived in the imagination. This limit is called 'now'. Does the 'now' actually exist? If it has no actual existence, in what sense does it exist? These are the questions to which Avicenna tries to answer. According to him, it has no actual existence, because if time had a limit, the continuity of time would be disrupted, which is absurd. [3]

If the 'now' actually existed, the proper place for it would either be at the beginning or at the end of time. But it can not be at the beginning of time, because time would then exist after a non-existent prior (lā qabla lah), which is absurd. Therefore it has

1. Avicenna, al-Najāh, op.cit., p.116.
2. Avicenna, ʿUyun al-Ḥikmah, op.cit., p.28.
3. Avicenna, al-Shifāʾ, op.cit., vol.I, p.74.

a prior period with which it is continuous (muttaṣilan bihi). This limit, then, does not divide the prior and posterior, rather it connects them. Nor can this limit be at the end of time. If this limit had no posterior period, neither the Necessary Being (wājib al-wuǰūd), nor the absolute possibility would have any existence. But the fact is that the Necessary Being and the absolute possibility cannot be removed. Therefore it must have a posterior period. In this respect 'now' would again be the connecting link, and not the dividing principle.[1] Time, therefore, has no actual 'now', but a potential 'now'. This potentiality of the 'now' is proximate to actuality (al-quwwat al-qarīb min al-fiʿl), that is, time is always capable of being imagined as having in itself a 'now' either ex hypothesi, or by means of motion, like the beginning of sunrise and that of sunset.[2]

'Now', when considered in relation to time, is always at a beginning and an end, and it is in continuous flux, having no beginning. That which is in motion, that which is at rest, that which is generated or corrupted have no initial now in which to move or to be at rest, generated or corrupted, for time can potentially be divided ad infinitum.[3]

1. Ibid.,pp.74-75.
2. Ibid.,p.75.
3. Ibidem.

'Now' is encompassed by 'past' and 'future' which constitute time. And time is limited by 'now'. In this respect, now may be compared to the extremity of a moving body.[1] This extremity constituting a point is imagined to produce by its motion a line. In the same way, it may be said that in time and in motion there is something corresponding to a point which produces time and motion. As the extremity of the moving body produces a continuous motion, so the 'now' produces a continuous time. Therefore, to the extremity of the moving body corresponds a point in distance and a 'now' in time. Since the extremity of the moving body may be thought to be indivisible, the 'now' which we have considered may accordingly be considered to be indivisible. It is by means of 'now' that the prior and posterior in time can be distinguished. In this sense, 'now' is most deserving to be a unit by which to number.[2]

As we have already seen, the prior and posterior are produced by motion in relation to distance. Therefore motion numbers time by producing the number of time, namely, the prior and posterior, and time numbers motion because it is the number of motion. According to Ibn Sīnā, time numbers motion in two ways: Firstly it endows motion with a measure, and secondly it determines more or less the quantity of its extension (kammiyyat qadrihā). Similarly, motion

1. Ibid.,p.76.
2. Ibid.,p.77.

measures time in the way that it determines its duration in so far as it brings into being in time the prior and posterior. This is like signifying the measure with the measured and the measured with the measure. For example, sometimes distance determines the extent of motion and sometimes motion that of distance. This is the case when we say the motion of two parasangs and the distance of one ramyah (the distance of a bow-shot). However, one of them endows the other with a measure, that thing being essentially the measure. Since time is, in essence, continuous, it can be said to be long or short, and in so far as it is the number in relation to prior and posterior, it can be said to be much or little.[1]

d) The Reality of Time -

Leaving aside the theories concerning the unreality of time, we may, now, ask: does time have an existence in external reality? Or does it only exist in the mind? Aristotle attempts to compromise these two aspects. According to him, time is real because it exists together with motion, and it is conceptual because the soul or the mind is a means of judging the number of motion. Even when he tries to show the relation between the mind and the existence of time, he speaks in terms of change which occur in our thoughts. For him, such change in our thoughts is adequate for the perception of time.

1. Ibid.,vol.I,p.77.

However, this change in our thoughts has no better place than the change in general. Aristotle's intention is, therefore, that motion and time are inseparable whether the former occurs in the mind or in external reality. [1]

Avicenna accentuates the reality of time. For this he resorts to the relation subsisting between motion and time. If time, he says, did not exist in external reality, there would exist no possibility of motion's traversing varying distances at different speeds. This possibility has a corresponding measure, namely, time. Therefore, the existence of time is not due to the estimative faculty; it is real. [2]

Time, however, has a weaker existence than motion, because it depends upon motion. Its existence is always in the process of becoming, in the sense that between the two imaginary 'nows' there is something we call time. Therefore, those who considered time as having an existence merely in the 'now' are in the wrong, since time in no way exists in the 'now'. [3] Nor does time exist in time, since there are things which do not exist in place, and things which do not exist in time: time belongs to the second category and place to the first. [4]

1. Aristotle, Physics, IV, 14, 223a, 25-30.
2. Avicenna, al-Shifā', op.cit., vol.I, p.78.
3. Ibidem.
4. Ibidem.

e) The Ultimate Cause of Time -

As we have already seen, Aristotle and Avicenna agree on the fact that time is an accident of motion. What kind of motion is it of which time is an accident? Time does not depend for its existence on every motion, or else every motion would have a time specific to it and consequently there would exist many times. Time, therefore, depends for its existence on that motion which is uniform and has no limits.[1] By the uniform and unlimited motion Avicenna means celestial motion.[2]

Avicenna is well aware of the difficulties involved in accepting the uniform celestial motion as the basis for the existence of time. Someone may ask, he says, 'if such a motion did not exist, would not time be non-existent?(yafqidu). Avicenna encounters this argument by saying that the circular motion is due to a round body in virtue of which directions exist. Therefore, the remaining categories of motion, namely, the rectilinear, natural and violent motions, depend for their existence on the circular motion. If we rely, he goes on, on the imagination for the fact that we remove the circular motion in the imagination and prove the reality of a finite rectilinear motion, in this way will be established the reality of the limited time (zamān mahdūd). However, the data obtained from the imagination

1. Ibid.,vol.I,pp.78-79.
2. Avicenna,al-Najāh,op.cit.,p.118;cf.Aristotle,Physics,IV,14,223b, 15-24.

are not reliable and are contradictory to the facts of external reality. Therefore, time is dependent for its existence on the circular motion. It numbers this motion as well as others.[1]

Is time created or eternal? Like Aristotle, Avicenna is of the opinion that it is eternal, and argues from the infinite divisibility of motion and time. Only God precedes them. But God's priority to time and motion is not a temporal priority, rather it is a priority in essence. This is like the effusion of the light from the sun, and like the movement of the key with the movement of the hand. If time were created in time, its creation would be after a period of non-existence, namely after a non-existent before. It would, then, be after a before and before an after; and what is so, is not the beginning of before, and what is not the beginning of before, is not the beginning of time. Time, then, has an original creation (ibdā'), not preceded by anything except God. This is the case with motion, particularly with the circular motion.[2]

Aristotle, sympathising with the Heraclitean view, makes mention of the cyclical nature of time. According to him, human affairs form a circle, and that there is a circle in other things that have a movement according to nature.[3] The same opinions recur in rotation

1.Avicenna,al-Shifā',op.cit.,vol.I,p.79.
2.Avicenna,al-Najāh,op.cit.,p.117.
3.Aristotle,Physics,IV,14,223b,24-30.

among men, not once or twice or occasionally but infinitely often.[1] The reason why Aristotle mentions this is that there is a close connection between time and the circular motion. Aristotle, therefore, differs fundamentally from Heraclitus in that the latter insists on the eternity of motion as well as the never-ceasing alternation of a cyclic destruction and regeneration of infinite, co-existing or succeeding worlds or world-periods. The universe is alternately born from fire and again dissolved into fire in rigidly fixed periods to all eternity.[2] This latter view was later incorporated into the Ismāʿilian cosmogony.[3]

By connecting time with the circular motion, Avicenna, like Aristotle, is under the influence of the older cosmological theories derived from Babylonian astrology.

Avicenna, like Aristotle, goes on to stultify the mythological theories that time is the great changer and destroyer.[4] This idea is found in Greek mythology as well as in Iranian philosophico-religious systems. In Greek mythology Chronos, which is identified with the infinite time, devours his own children.[5] In Iran, Zurvan, the Supreme Deity, is identical with the Infinite Time who creates Ohrmazd and Ahriman. But Zurvānism has a touch of optimism, since Ohrmazd, who...

1. Aristotle, Metaphysics, I, 3, 339b, 28ff.
2. Chroust, op.cit., pp.4-5.
3. H.Corbin, Cyclical Time in Mazdaism and Ismailism, in Man and Time, (Papers from the Eranos Yearbooks), ed.by, J.Campbell, (London, 1958), pp.115ff.
4. Aristotle, Physics, IV, 14, 222b, 15-25; Avicenna, al-Shifāʾ, op.cit., vol.I, p.81.
5. Chroust, op.cit., p.2.

is the principle of Good will reign in eternal futurity. [1]

Time, according to Ibn Sīnā, is not the cause of anything. Since a thing exists and becomes non-existent despite the subsistence of time, and since people see no manifest cause for it, they relate it to time. If that thing is praiseworthy, they praise time; but if it is blameworthy, they blame time. However, things existing in external reality have, in most cases (fī akthar al-ʾamr), manifest causes (ẓāhirat al-ʿilal), whereas non-existence and destruction have hidden causes (khafī al-ʿillah). It is for this reason that most of the things which they relate to time are transitory things, like, for example, forgetfulness (hisyān), ruination, old age, destruction, and so on. [2]

---

1. R. C. Zaehner, Zurvan, a Zoroastrian Dilemma (Oxford,1955), p.107.
2. Avicenna, al-Shifāʾ, op.cit., Vol.I. p.81. There exists a striking similarity between him and a seventeenth century philosopher, Gassendi who states that if time is not a source of destruction, it cannot be a source of fertility or a power that ripens and reveals either. The most probable reason why in the seventeenth century time itself was regarded as a cause provoking admiration or horror according as the results of its alleged agency were beneficial or harmful was that knowledge of the real causes of events was often lacking. See W. von Leyden, Seventeenth Century Metaphysics (London,1968), p.239.

e) Things that are in Time.

In what sense is a thing in time? This question is the starting point of both Aristotle [1] and Avicenna. According to Avicenna, a thing is in time in so far as the notions of prior and posterior are predicated of it. That which possesses the prior and posterior is either motion or something involving motion. If it is motion, the notions of prior and posterior belong to its essence, if it is something which possesses motion, its being prior and posterior is due to motion. Since sometimes the species, parts and end of a thing are said to be in that thing, 'prior' and 'posterior', 'now', 'hours' and 'years' are also said to be in time. 'Now' in time is like the unit in number, and prior and posterior are like the odd and even numbers, and hours and days are like two, three and ten in number.[2]

Rest is also in time. Avicenna distinguishes two kinds of rest. First, it is persistent, enduring and eternal, and second the prior and posterior occur to it accidentally, because prior and posterior to rest, there exists motion. In the latter sense, rest is not an absolute privation of motion, but is the privation of the motion of a thing of whose function it is to be in motion. Therefore such rest is more likely to be in time accidentally.[3]

1. Aristotle, Physics, IV, 12, 221a, 5ff.
2. Avicenna, al-Shifā', op.cit., vol.I, p.80; al-Najāh, op.cit., p.118.
3. Avicenna, al-Shifā', op.cit., vol.I, p.80; cf. Aristotle, Physics, IV, 12, 221b, 5-19.

Various kinds of changes which resemble locomotion in that they have a beginning and end are in time, because they have the prior and posterior.[1]

The things in which exist no prior and no posterior are not in time, though they co-exist with time, just as the world is co-existent with a mustard-seed (al-khardalah), but it is not in it.[2]

A thing may be in time in one respect, that is, in so far as it has prior and posterior, and not in time in another respect, that is, in so far as it is an essence or a substance.[3]

That which is co-existent with time but not in time is said to be the eternal duration (dahr). Unchangeable beings subsist in eternal duration.[4] Here, Avicenna, like Aristotle relates time to eternity, as it has already been done by Plato according to whom time is the moving image of eternity.[5]

The relation subsisting between the permanent things and their co-existence with each other constitutes a notion above eternal duration. It is fitting to call it sarmad (perpetuity). In other words,

1. Avicenna, al-Shifā', op.cit., vol.I, p.80; cf.Aristotle, Phys., IV, 14, 223a, 1-15.
2. Avicenna, al-Shifā', op.cit., vol.I, p.80.
3. Avicenna, al-Shifā', op.cit., vol.I, p.80; cf.al-Najāh, op.cit., p.118; ʿUyūn al-Ḥikmah, op.cit., pp28.
4. Avicenna, al-Shifā', op.cit., vol.I, pp.80-81; cf.Aristotle, Physics, IV, 12, 221b, 3-5.
5. Plato, Tim., 37d, 6f.

the subsistence of every being without any change and without any relation to a time-period is called sarmad.[1]

f) The Attributes of Time -

Among the things which are considered to be in time are the attributes (al-aʿrāḍ) of time which are represented by certain terms.

By 'now' is generally understood the term common to both past and future. 'Now', according to Aristotle and Avicenna has two aspects: First it is every common dividing limit, though it inheres in the divisions of both past and future: Second it is the limit of time without indicating a connection (al-ishtirāk), and is rightly considered in the imagination to be the dividing term and not the connecting link. Therefore, the dividing and unifying occur in the same 'now', though they are differently defined. In external reality, 'now' is the connecting link. Here Avicenna is mainly interested in the structure of time as a continuous quantity.[2]

'Now' is also used in the sense of a short time which is most proximate to the present 'now'. Sometimes the duration between these two nows are perceptible to the mind, just as the priority and

1. Avicenna, al-Shifāʾ, op.cit., vol.I, p.81; cf. ʿUyūn al-Ḥikmah, op.cit., p.28.
2. Avicenna, al-Shifāʾ, op.cit., vol.I, p.81.

posteriority of two nows to one day or to one hour. And sometimes these two 'nows' are so near to each other that the duration between them is imperceptible to the mind. [1]

'All of a sudden' (baghtatan) refers to a time in which an event occurs when it is not expected to occur, and its duration is so short that it can not be apprehended. [2]

'In no time' (daf'atan) has two meanings: (a) it refers to the occurrence of an event in the 'now', and (b) it is the opposite of gradually (qalīlan qalīlan). [3]

Huwadhā (immediately) refers to a future now in the proximity of the present now. The duration between these two 'nows' cannot really be discerned. [4]

Qubayl (just) refers to a past 'now' which is near the present 'now'. The duration between them can be perceived. Bu'ayd (presently) is the counterpart of qubayl and refers to the future. [5]

Prior (mutaqaddim) in the past refers to a past time farther from the present 'now'. Posterior (muta'akhkhir) in the past is the

---

1. Avicenna, al-Shifā', op.cit., vol.I, p.81; cf. Aristotle, Physics, IV, 13, 222a, 10-24.
2. Avicenna, al-Shifā', op.cit., vol.I, p.81.
3. Ibidem.
4. Ibidem.
5. Ibidem.

opposite of the prior in the past. Prior in the future refers to the part of time which is proximate to the present 'now'. And posterior in the future is the opposite of the prior in the future. In the absolute sense, prior is identical with the past and posterior with the future. [1]

Al-Qadīm with respect to time is that which has a long duration. Avicenna uses this term here in the sense of 'ancient, old'. In the absolute sense, it is that for whose age there was no beginning. [2]

g) Time and Avicenna's Philosophy.

Aristotle and Avicenna confine time to the Cosmos. Since the world is eternal, time and motion must also be eternal either according to essence, or with respect to time. That which is eternal with respect to essence is that whose essence has no origin from which it exists. That which is eternal with respect to time is that for whose age there is no beginning. He also differentiates between the two distinct meanings of the word 'created'. Firstly, it is that for whose essence there was an origin by which it exists, and secondly it is that for whose age there was a beginning, and there was a time when it did not exist. In other words, there was a prior period

1. Ibidem; cf. Aristotle, Physics, IV, 14, 223a, 4-15.
2. Avicenna, al-Shifā', op.cit., vol.I, p.81.

(qablīyyah) during which it did not exist, and that prior period was terminated. Everything that came to be in time must have been preceded by time and matter. The existence and the non-existence of this thing cannot be simultaneous. Therefore, its existence must be preceded by its non-existence. What constitutes this period is either a quiddity pertaining to its essence which in this case is time, or a quiddity pertaining to something other than itself, which is its time. In both cases it is a proof of the existence of time.[1] He does not mean by non-existence absolute privation, rather it is that which is capable of existence. Avicenna gives an ontological meaning to the logical terms such as possible, necessary, and impossible. The possibility of existence inheres in a substratum. This substratum is the First Matter (hylē). Matter is the recipient of forms. That which is not preceded by the existence of a recipient (wujūd al-qābil) cannot come to be.[2] Therefore, matter, together with motion and time, is eternal. They are not preceded by anything except by God. God precedes matter, motion, and time, not in time, but in essence. By creation it must be understood the original creation (al-ibdāᶜ). In such creation time has no place. Separate intelligences are not in time; they precede each

1. Avicenna, al-Najāh, op.cit., pp.218-219.
2. Ibid., pp.219-220.

other only in rank and order, one being more to be preferred than the other.[1] Even in substantial things, the element of time is to be belittled, since change in substance occurs in no time.

II. Reaction against the Aristotelian View of Time -

The predominant element in the Aristotelian view of time, as we have seen, is its relational nature. Time stands in a special relation to motion, but is different from it. We can not conceive time except with motion. Therefore, according to the Aristotelians, since empty space is inconceivable, and empty time, filled with no movement is equally inconceivable,[2] and outside the universe there is neither void nor time. Eternity of time goes hand in hand with the eternity of the universe. Aristotle argues that just as an individual's life comprehends the entire time of his existence, so the life of the eternal universe encompasses all time and infinity.[3] In this way, Aristotle relates time to eternity. Here eternity is identified with 'eternal duration', to use Avicenna's language. According to Avicenna, eternal duration (dahr), when considered in relation to transitory things, is called time. But when it is considered in relation to permanent things, it cannot be called time.[4] This division between time and eternity was, I think, brought about by the fact that

1. Ibid.,pp.277f.
2. Aristotle,Phys.,VIII,1,251b,10;E.Zeller,Aristotle and the Earlier Peripatetics,tr.by B.F.C.Castelloe and J.H.Muirhead,(London,1897),vol.I,p.435.
3. Aristotle,De Caelo,279a,23-28;F.Solmsen,op.cit.,p.158.
4. See supra.

the Aristotelians in general connected time with motion, and made it an accident of motion.

Another aspect of the Aristotelian view of time, as we have seen, was that time is composed of successively fleeting 'nows'. It is the number of motion, in so far as it is divided into past and future by the 'now', corresponding to the prior and posterior in motion.

These two aspects propounded by the Aristotelians with respect to time came under severe attacks from various quarters. It is, as we shall later show, these attacks and the re-formulation of the Aristotelian definition of time that prepared the way for the identification of time with duration and interval.

Leaving aside the Sceptics who denied our knowledge of reality, and who, by so doing, reached agnosticism, the first attack came from Aristotle's disciple, Strato of Lampsacus.[1] Although his criticism is not altogether justifiable, it touches on the fundamental weaknesses in the Aristotelian view of time. He, first, questions the definition of time as the number of motion. According to him, number is a discontinuous quantity, whereas time and motion are con-

1. E. Zeller, op.cit., vol.II, pp.461-464; Anton-Hermann Chroust, The Meaning of Time in the Ancient World, in the New Scholasticism, vol.XXI, (Jan., 1947), pp.37-39; S.Sambursky, Physics of the Stoics, (London, 1959), pp.100-101 and 102.

tinuous quantities. Time is eternally beginning and ending; with number this is not the case. On the other hand, the parts of any number exist simultaneously, whereas the parts of time are always 'in succession'. Aristotle and the later philosophers following him, e.g., al-Kindī and Avicenna [1] in fact stress the point that by number must be understood the continuous not the discrete number. Strato, secondly, objects to relating time merely to motion, for, according to him, to rest also earlier and later apply. Why, then, should it not measure rest? We are not informed whether rest is taken in the relative sense or in the absolute sense. If he uses it in the relative sense, this criticism is not justifiable, for the Aristotelians also held that time measures rest only accidentally, in so far as by rest is understood something capable of motion. If he means by rest absolute rest, his criticism is valid.

Strato defines time as the measure or magnitude inherent in all action and activity, the measure or magnitude of everything that is in motion and at rest. He, furthermore, distinguishes between time and that which is in time. According to him, when we say that

1. See supra.

everything is in time, we mean that the measure is in conformity with everything, with all that becomes and all that is. Consequently he refuses to admit that days, months, seasons, or years are parts of time: they rather correspond to real and definite events, while time is only the duration of these events. In this view is latent the notion of time flowing without relation to anything external, but it is doubtful that Strato was aware of this.

Under the influence of Strato the Stoics[1] introduced into their definitions of time 'interval' which fits better the idea of continuity. Thus Zeno defines time as 'the interval of movement which holds the measure and standard of swiftness and slowness, and Chrysippos, as 'the interval of movement in the sense in which it is sometimes called the measure of swiftness and slowness', or 'the interval proper to the movement of the cosmos, and it is in time that everything moves and exists'. Chrysippos indicates the finitude of time on the one hand, and the infinitude of time on the other. For, according to the Stoics, the universe or the cosmos originates and ceases in cyclic periods through a general conflagration. This Heraclitean view forms the basis of Chrysippos' conferring a dual meaning

1. For the Stoics see Chroust,op.cit.,pp.39-42;S.Sambursky,op.cit.,pp.99-107.

on time. In so far as the one cosmic period in which the universe exists is concerned, time is finite; in so far as the eternally recurring periodic or cyclic destruction and generation of the world is concerned, it is infinite. The cyclical nature of time was emphasised by Plato [1] and in an attenuated sense by Aristotle. Plato's view is that motions of the heavenly bodies give rise to time, which is nothing else than the duration of their periods. A complete cosmical period, or perfect year has elapsed when all the plenatory circles at the end of their revolution have reached the same point of the heaven of fixed stars, from which they set out. Similar views are found in the philosophico-religious systems of the Orient.[2]

The infinitude of time is also clear from the statements of the Stoics that time is infinite for the past as well as for the future.[3]

From the fact that time is a continuum they infer that it is capable of infinite division. Every part of time is time, just as every part of earth or sea is again earth and sea. They believe, in

1. F.M.Cornford,Plato's Cosmology,(London,1937),p.116;Plato,Tim.,39d; E.Zeller,Plato and the Older Academy,(London,1888),pp.382-383; Chroust,op.cit.,pp.27-28;J.F.Callahan,op.cit.,p.18.
2. See R.C.Zaehner,op.cit.;H.Corbin,article in Man and Time,op.cit., pp.120-121.
3. Chroust,op.cit.,p.41;Sambursky,op.cit.,p.102.

consequence, that time cannot be whittled down to extensionless 'nows'. Present is partly future and partly past.[1] It is for this reason that the time elapsed can, according to them, be measured by an arc of a circle.[2]

Plutarch of Chaeronae, who is an eclectic Platonist,[3] interpreted Plato to the effect that the world was created out of chaotic matter, and time together with it. Time, according to him, is the single, orderly and harmonious motion of the universe according to number. He, therefore, in accepting the temporal origin of the universe and the finitude of time differed from Aristotle. In Islam, as we shall later see., Abū Bakr Zakariyyā al-Rāzī [4] followed him in believing in the temporal origin of the world. According to him, the world was formed from eternal matter.

Galen, according to a tenth century source, held that motion does not produce time for us; it only produces for us days, months and years. Time, according to him, exists per se and is not consequent upon motion. The same source relates on the authority of Alexander that this was also Plato's view. It may therefore be

---

1. Sambursky,op.cit.,p.102.
2. Ibid.,p.103.
3. For Plutarch see Chroust,op.cit.,p.58;R.Walzer,Greek into Arabic, (Oxford,1963),p.187;for Plato's view see al-Shahrastānī,K.al-Milal., op.cit.,p.288.
4. R.Walzer,op.cit.,p.187;S.Pines,Some Problems of Islamic Philosophy, in Islamic Culture,vol.XI,no.1,(Hyderabad,1937),p.76.

inferred from this source that the view that time is identical with duration and absolutely independent of motion was taken over by Abū Bakr al-Rāzī. [1]

Plotinus, in his criticisms of the Aristotelian view, may have been inspired by Strato, and by the Sceptics whose main interest lay in their negative attitude towards the reality of time. Having criticised the views that time is motion and the sphere itself, [2] he considers the Aristotelian definition of time as the measure of motion according to prior and posterior. He argues that if we consider motion as a whole, how can we number irregular and non-uniform motion? What number or measure will there be, or what will be the standard of measurement? If time is the number of every kind of motion, that would be like the number ten counting horses and oxen, or some measure for liquids and solids. This does not tell us what time is, but only what time measures. If time is only a number, how does it differ from an abstract number? If, however, it is a continuous quantity, it will have some quantity like a cubit-rule. It will then be a magnitude just like a line keeping pace with motion. But how will it measure the motion with which it is keeping pace? Why should the one of the two be the measure rather than the other?

1. S.Pines,A Tenth Century Philosophical Correspondence,in the Proceedings of the American Academy for Jewish Research,vol.XXV, (New York,1955),pp.111-113.
2. Plotinus,Enneads,III,8,1-20;Callahan,op.cit.,pp.98-102;W.R.Inge, The Philosophy of Plotinus,vol.I,(London,1918),pp.170-171.

Besides an accompanying measure is more plausibly considered as a measure of the particular movement it accompanies than of movement in general. Supposing that this magnitude accompanying motion is considered not in connection with motion in general, but with that particular motion with which it is keeping pace, this motion will have to be continuous and uniform, namely the motion of the universe. But still it is hard to see why one should be the measure any more than the other. [1]

Aristotle and his followers, as we have seen, are aware of this circularity inherent in their definition, for they say that 'we measure motion by time and time by motion'.[2]

Plotinus goes on to inquire whether time is independent of motion or dependent on it. If time is considered only along with the measured motion, then motion will be that which is measured, and some kind of magnitude again will do the measuring. This implies three possibilities: (a) time will either be the motion considered as measured by the magnitude, or (b) the magnitude that measures, or (c) that which uses the magnitude in order to measure the quantity of motion. The first possibility amounts to the fact that motion measures itself.

1. Plotinus,Enneads,III,9,1-23;Inge,op.cit.,p.171.
2. The Philosophy of Time,ed.by R.M.Gale,(London,1968),p.3.

In fact motion needs a continuous measure by which to be measured. But this measuring magnitude will then require some kind of measure in order that motion may be measured by a measure that has in itself a certain quantity. Time, being continuous, is incapable of measuring anything unless something else has provided it with a measure and divided its unbroken continuity. Time then will be, not the magnitude accompanying the movement, but that numerical value by which both motion and this magnitude accompanying motion are estimated. Plotinus wonders how this abstract number can measure the continuous magnitude accompanying the motion in order to divide it into units of measure by which motion can be measured.[1]

Even if we should discover a way in which this abstract number could measure, we should not discover time measuring, but only a certain amount of time, which is something different from time. Time is not a mere function of providing a quantitative measure.[2]

Someone might say that time is a number that measures from without, like the tens applied to the reckoning of the horses and cows without being inherent in them. But this does not tell us what time is in itself before it measures, in the same way as we can tell what the number ten is in its own proper nature.[3]

1. Plotinus, Enneads, III, 9, 23-43; Callahan, op. cit., pp. 109-111.
2. Plotinus, Enneads, III, 9, 44-46; Callahan, op. cit., p. 111.
3. Plotinus, Enneads, iii, 9, 47-51; Callahan, op. cit., pp. 111-112.

Plotinus, further, asks, 'is time that which accompanies motion and measures it according to prior and posterior? This is unlikely, because we are still left asking what this thing is that measures according to prior and posterior. On the other hand, that which measures according to prior and posterior must measure according to time. Therefore, this thing that measures motion by prior and posterior must in some way be attached to time and in contact with it in order to measure.[1]

The prior, Plotinus goes on, is time that ends upon a certain 'now', while the posterior is time that begins from a 'now'. Therefore the number that measures motion, whether motion in general or regular motion, according to prior and posterior is other than time, and we have not yet answered the question what time is.[2]

He, then, asks, why should the mere presence of a number give us time? It makes no difference whether the number is considered as measured or as measuring, because it is either the one or the other. To make the number essential to time is like saying that a magnitude has not its full quantity unless someone measures this quantity. To take some portion of time and find its numerical

1. Plotinus, Enneads, III, 9, 55-60.
2. Plotinus, Enneads, III, 9, 64ff.

statement simply means that time existed even before number was applied to it.[1]

Again, since time is infinite, Plotinus wonders how can number apply to it? [2]

Plotinus argues against the Aristotelians by asking why time should not exist before the soul or the mind that measures it, for no measurement by anything is necessary to its existence. This would only be true if we mean by it that time receives its origin from soul. Time, measured or not, has the full extent of its being.[3]

Throughout his criticism, Plotinus stresses the point that time is independent of any kind of number and motion. Time does not measure motion, but is measured by it. It is not subjective, but real.[4]

Plotinus, in his own theory of time, relates time to eternity. In this, he mainly follows Plato who declares that time is the moving image of eternity.[5] In both Plato and Plotinus is found the dichotomy between the ideal and sensible world. Eternity belongs to the ideal world, and is, therefore, the prototype or the model upon which time is shaped.

---

1. Plotinus, Enneads, III, 9, 68ff.
2. Plotinus, Enneads, III, 9, 75ff.
3. Plotinus, Enneads, III, 9, 78f.; Callahan, op.cit., p.115.
4. Plotinus, Enneads, III, 7, 11-12; Inge, op.cit., p.171; The Philosophy of Time, op.cit., p.2.
5. Plato, Tim., 37d, 6f.; cf. Plotinus, Enneads, III, 1, 1.

In his discussion of eternity, he finds unacceptable the view that identifies it with rest in the Ideal World.[1] He argues against the first view, saying that the Intellectual Principle contains particular things as parts of itself, whereas eternity contains them as a unified whole. He disposes of the second view by arguing that rest as such does not imply the notion of unity and lack of extension, which are the characteristics of eternity.

The Intelligible World, according to Plotinus, in a sense possesses unity, but in another sense it is compacted of diversity. From the point of view of diversity, we might call it being, in so far as it is substrate, motion in so far as it possesses life, rest in so far as these several things form a unity. Eternity is manifested in the unity of all these diverse elements which forms the basis of a connection between the ideal and visible worlds.[2] Plotinus defines eternity as 'the mode of an authentic existence enshrouding the being within being which is instantaneous, complete, and ever-present total continuity.'[3] Eternity is the life of the Ideal World which is forever unchanging and possesses all its reality in the present. It is in no way accidental to the intelligible essence, rather it receives its origin from it and exists in union with it.[4]

1. Plotinus,Enneads,III,2,1ff.;Callahan,op.cit.,pp.89-90;P.V.Pistorius, Plotinus and Neo-Platonism,(Cambridge,1952),p.152.
2. Callahan,op.cit.,pp.90ff.;Pistorius,op.cit.,pp.152-153.
3. Chroust,op.cit.,p.65;Plotinus,Enneads,III,7,3.
4. Plotinus,Enneads,III,4,1.

Eternity here is identified with the Eternal 'now', not with endlessness. Eternity, according to Plotinus, cannot be endless time, for although time be endless, it is nevertheless time.[1]

Plotinus also discusses eternity from the point of view of him who contemplates eternity. By contemplating eternity through an eternal principal within oneself, one becomes like it and eternal.[2] This mystical element in his philosophy might have been the basis of later mysticism in the Muslim Orient.[3]

Eternity as unextended present is closely connected with Plotinus' theory of emanation which influenced Muslim philosophers in general. In this theory of emanation time has no place. In the One, who, according to Plotinus, is the first hypostasis, is centered the eternal nature. The intelligible essence, which is the second hypostasis between the One and Soul, may be regarded as an unmoving circle which has as its centre the One.[4]

Time, according to Plotinus, makes its appearance in the domain of Soul. It is, therefore, preceded by the One and Intellect;

1. Plotinus,Enneads,III,7,6;Helene Weiss,An Interpretative Note on a passage in Plotinus' on Eternity and Time,in the Classical Philology,vol.XXXVI,(1941),pp.230-239;Pistorius,op.cit.,p.153.
2. Plotinus,Enneads,IV,5,1ff.
3. For the Mystic,in contemplation of the true beauty of God,time in every form disappears.In a state of grace (ḥāl) the changing instant (waqt) in him becomes consolidated in the life in the eternal presence of God.See The Kashf al-Maḥjūb,tr.by Nicholson,(Leyden,1911),pp.367ff.; see also E.H.Palmer,Oriental Mysticism,(London,1969),pp.23-24.
4. Plotinus,Enneads,IV,4,16;Chroust,op.cit.,p.63.

but its being posterior does not mean that it had a beginning. It is later only because it pertains to an inferior grade of existence, and is dependent on the intelligible being.[1]

Soul, desirous of manifesting the diversity in it, began to move, and time itself began to move. It was in this way that time was fashioned as the image of eternity.[2] Just as eternity is the life of the Supreme, so time is the life of Soul as it passes from one stage of actualization to another.[3] Every new thought in Soul produced a constant succession of things ever anew. This extension of the life of the Soul gave rise to time; and the constant progress of this life has time ever anew.

From the above account it must not be understood that the life of Soul has succession and is in time. Rather the nature of Soul is eternal, and not in time. There is succession only in the products of Soul. Accordingly time is the life of Soul, not in itself, but in so far as it is the principle of life and motion for the universe.[4] Time, in this sense, subsists between Soul and the Universe, being indefinite and its continuity unbroken. This indefinite

1. Plotinus,Enneads,III,11,1ff.
2. Plotinus,Enneads,III,11,8ff.,and IV,4,15;Inge,op.cit.,pp.172-173.
3. Pistorius,op.cit.,pp.153 and 155-156;Inge,op.cit.,p.173;Callahan, op.cit.,p.129;Plotinus,Enneads,III,7,11.
4. Plotinus,Enneads,III,7,12;IV,4,1;IV,4,15-16;Inge,op.cit.,p.173; Callahan,op.cit.,p.120.

and unbroken continuity of time is defined by the motion of the sphere which manifests best the continuous communication of the life of Soul. In contradistinction to Aristotle, Plotinus declares that time is not the measure of motion, but, rather, motion is the measure of time, it is not the cause of the existence of time.[1]

In Plotinus' discussion of eternity and time, metaphysical and ethical considerations play an important role. Eternity, being the life of Intellect, belongs to a higher grade of existence than time, which is the life of Soul, and which, in its continuous flux, resembles eternity. This distinction between time and eternity isolates his view from the later doctrines, proposed by Abū-Bakr Zakariyyā al-Rāzī, Abū'l-Barakāt in Muslim Philosophy, and Crescas in Jewish philosophy.

However, in Plotinus' view of time we find important elements which, together with other sources, may have been the starting point of the above-mentioned philosophers. As we have seen, Plotinus separated time from motion. Time, for him, is 'a kind to itself', 'a thing within itself'. It only incidentally exhibits the magnitudes of motion.[2] It is indefinite in so far as it is the extent of the life of Soul and not defined by the motion of the universe. Time, therefore,

1. Plotinus,Enneads,III,7,11-12;H.A.Wolfson,Crescas' Critique..,op.cit., pp.654-655;Inge,op.cit.,p.173.
2. Plotinus,Enneads,III,12,52f.

is measured by the regular and uniform motion incidentally, and in that way manifested to us by such motion of the celestial sphere. Even though the motion of the celestial sphere comes to rest, this rest is measured by another kind of motion, namely the activity of the soul.[1] As in Aristotle, rest is used here in the relative sense. The extent of rest, according to Plotinus is less capable of leading us to a perception of time than that of motion.[2] On the other hand, by coupling the activity of soul, which is a kind of motion, with time, Plotinus does not differ fundamentally from Aristotle. In fact, this shows that he is still very much under the influence of Aristotle.

As we have seen, in his criticism of Aristotle, time is not subjective for Plotinus in the sense that its existence depends on our knowing it. According to him, we possess a duration in the life of our souls even when we are unaware of it. On the other hand, time is manifested to us by the regular motion of the celestial sphere.

Iamblicus[3], following mainly Plotinus, considers Soul as the origin of time, or in other words, as the projection of the spiritual world onto the physical being which changes from one state into another. Time is that which measures the process of becoming

1. Plotinus, Enneads, III, 12, 1ff.
2. Plotinus, Enneads, III, 13, 1ff.
3. For Iamblicus see Chroust, op.cit., pp.67-68.

and is, in this respect, related to motion, just as being is related to becoming. He distinguishes two kinds of time, namely 'time derived from the universe' and 'physical time', in other words, abstract and concrete time. The abstract time pertains to the world of absolute being, whereas the physical or the concrete time proceeds from the abstract time as the measure of motion in the sensible world of becoming.

III. Time as Duration -

One of the difficulties inherent in the Aristotelian view of time was that time is infinite, composed of finite times. On the other hand, although the Aristotelians admitted the infinitude of time and motion, they denied it to space and the corporeal body. Such flagrant contradiction drew the attention of an early Muslim philosopher al-Kindī (c. 185/801-c. 260/873). His attitude against the Aristotelian view, as it appears, was determined by his Muʿtazilite tendency.[1] Following the Mutakallimūn of his time, he held that time, together with motion and space is finite, and contrary to the Aristotelians, he founded his arguments for the temporal production of the world,[2] on the finitude of time, space and motion. He also differs

1. For the Muʿtazilism of al-Kindī see R.Walzer,op.cit.,pp.176-187.
2. Like the Muʿtazilites,he believes in the creation ex nihilo (ibdāʿ). He argues that the actions of God cannot be compared with those of man, because there is nothing equal to the Omnipotence of God in the limited and restricted power of human beings.God does not need any length of time (muddah) to create the world.He creates from nothing (jaʿala huwa min lā huwa),for He has the power to create from nothing.But man cannot act in the absence of matter (tīnah).Rasāʾil al-Kindī al-Falsafiyyah, op.cit.,vol.I,(1950),p.165.

from the Mutakallimūn in not accepting the atomicity of matter, space and time.[1]

According to him, matter, form, space, movement, and time are the five substances in every physical body.[2] Time, body (ǰirm), and movement are all interconnected and interdependent, and one does not precede the other. Time is the duration of the existence of the corporeal body, since it has no independent existence. Similarly motion pertains to the corporeal body, and has no independent existence. By motion he means all the categories of motion including the substantial motion in the form of generation and corruption. The corporeal body in this world is subject to change according to one of the species of change (tabaddul). Since every motion indicates the number of the duration of the corporeal body, it can only exist in virtue of that which possesses time. Therefore motion must necessarily exist together with the existence of the corporeal body, for the corporeal body cannot move after having been at rest.[3] There exist two alternatives: the body of the world is either created in time or eternal. If it is created in time, then its existence from non-existence is 'becoming'. But 'becoming' is one of the species of motion. It then

1. R.Walzer,op.cit.,p.184.
2. Rasā'il al-Kindī al-Falsafiyyah,op.cit.,vol.II,p.14.
3. Ibid.,vol.I,pp.117-118.

follows from this that the temporal production of the body of the world is motion, since the temporal production and motion are two necessary concomitants. But if the body of the world were eternally at rest, it would be possible for it to move. This would then amount to saying that the pre-eternal thing changed. But the eternal can not possibly change.[1] The corporeal body therefore cannot be without motion, which is, in turn, the fundamental condition for the existence of time. Time is the duration determined numerically by motion, and it is the number of motion. The time of the corporeal body is identical with the duration of its existence. As al-Kindī asserts, time is the duration in which the corporeal body is a being (huwiyyah, anniyyah).[2] The necessary consequence of all this is that the corporeal body, motion and time exist simultaneously and none of them precedes the other. Al-Kindī argues for the temporal creation of the world from the fact that time cannot be infinite, and consequently the duration of the existence of the world is finite.

From the above account it is manifest that the main difference between Aristotle and al-Kindī lies in the fact that al-Kindī identifies

1. Ibid.,vol.I,pp.113-114 and 118-119.
2. Ibid.,vol.I,pp.119 and 205.

'becoming' with motion, whereas Aristotle [1] denies this by saying that becoming is not motion.

For the finitude of time, al-Kindī argues that infinity cannot be realized actually, but only potentially. If infinity existed actually, we could never reach an imagined time-point proceeding from infinity.[2] The last argument is found in a more refined form in al-Ghazālī's Tahāfut al-Falāsifah,[3] and was perhaps taken by both al-Kindī and al-Ghazālī from the Alexandrian philosopher John Philoponus.[4]

Aristotle and his followers, as we have seen, considered time as the number of motion. Al-Kindī agrees on this definition, holding the number to mean not discrete but a continuous quantity.[5] Time is, on the other hand, the duration of the existence of a thing as long as it exists. If the existence of this thing is removed, its time will also be removed. It is because this duration is measured by motion that we call time the number of motion.[6]

---

1. Aristotle,Physics,IV,225a,20-32.
2. Rasā'il al-Kindī..,op.cit.,vol.I,pp.121ff.
3. Averroes,Tahāfut al-Tahāfut,tr.by S.van den Bergh,vol.I,(Oxford,1954), Introduction,pp.XIX-XX.
4. Ibidem;for the connection between J.Philoponus and al-Kindī see R. Walzer,op.cit.,pp.190-196.
5. Rasā'il al-Kindī..,op.cit.,vol.II,p.32.
6. Ibid.,vol.I,pp.120f.,and 205f.,and 167.

It is striking to note that al-Kindī, by identifying time with the duration of the existence of a thing, came closer to Abū'l-Barakāt's view than any other Muslim philosopher, as we shall see later.

In the later Muslim philosophical literature, the definition of time as duration or extension established itself. As we have already seen among the definitions given by the Ikhwān al-Ṣafā, [1] is the one according to which time is the duration counted by the movements of the sphere (muddat taʿudduhā ḥarakat al-falak). In al-Muqābasāt, al-Tawḥīdī [2] mentions the definition that time is an extension. In the Keys of the Sciences, al-Khuwarizmī gives the definition that time is a duration which is counted, i.e. measured, by movements, as by the motion of the spheres of heaven and other things in motion. [3] Finally al-Ghazālī, in his Maqāṣid al-Falāsifah mentions in the name of the Aristotelians the definition that time is a term signifying the duration of motion, namely, the extension of motion (Idh al-zamān ʿibārat ʿan muddat al-ḥarakah ayy ʿan imtidād al-ḥarakah). [4] A similar definition is attributed to Avicenna by

---

1. Rasāʾil Ikhwān al-Ṣafā, op.cit., Vol.II., p.17
2. al-Tawḥīdī, Muqābasāt, (Cairo, 1929), p.278.
3. al-Khuwarizmī, Mafātiḥ al-ʿulūm, ed. by van Vloten, (Leyden,1895), pp.137-138.
4. al-Ghazālī, Maqāṣid al-Falāsifah, op.cit., Vol.III., p.106.

al-Shahrastānī, in his summary of Avicenna's philosophy: 'And so there is here a measure for motions, corresponding to them, and everything corresponding to motions is something having duration, which duration implies a continual renewal of itself. It is this that we call time.' [1] The Jewish philosopher Narboni, in his commentary on the Kawanot, distinguishes Avicenna's view from that of Aristotle. He says, 'al-Ghazālī and Avicenna, however, do not take the term 'number' used by Aristotle in the sense of the parts of motion, but as the number of duration which is the nature of a primary entelechy. He thus says that the essence of duration is the essence of time, that is to say, they have a generic identity without implying a common subject (i.e. motion); and this follows as a consequence from the view that the nature of time differs from that of motion both in definition and subject. Though motion bears some relation to time, it is not part of it.' [2] Indeed, there is a strong internal evidence both in al-Najāh and al-Shifā' in favour of this interpretation. Avicenna asserts that the spatial continuity (ittiṣāl), in so far as it pertains to motion, is the cause of the existence of time which is

1. al-Shahrastānī, K. al-Milal wa'l-Niḥal, op.cit., p.401; cf. Avicenna, al-Najāh, op.cit., pp.115-116.
2. Wolfson, Note on Crescas' Definition of Time, in Jewish Quarterly Review, vol.X, (1919-1920), pp.14-15.

continuous by itself or the continuity itself, and it is not the cause of time's being continuous.[1] Therefore, according to him, continuity is the essence of time.

The Mutakallimūn[2] reduced the Aristotelian categories to two: substance and accident. The categories of quantity, place, time and so on are nothing but the relative characteristics that exist in the mind of the knower. They identify substance with the atom (jawhar al-fard). Since substance is inseparable from its accidents, it has, like the accident, a momentary existence. They not only accept the atomicity of matter, but also the atomicity of space, motion and time. According to Maimonides, they inferred this view from Aristotle's argument in the Physics that space, time and motion are correlative notions and consequently have a certain correspondence to one another. Al-Kindī, as we have seen, using the same inference, concluded that space, time and motion are finite, and consequently, the world is created in time. According to the Mutakallimūn, the atom endures simply through the supervention upon it of the accident of duration (baqā') which, like the rest of the accidents, cannot endure for two instants. In accordance with this view is the definition of

1. Avicenna, al-Shifā', op.cit., p.80.
2. See for the views of the Mutakallimūn M.Fakhry, Islamic Occasionalism, (London, 1958); Maimonides, The Guide for the Perplexed, tr. by S.Pines, (Chicago-London, 1963), ch.73, pp.196ff.; D.B.Mac Donald, Continuous Re-creation and Atomic Time in Muslim Scholastic Thology, in Isis, vol.IX, (Camb., Mass., 1925), pp.326ff.

time as the instant which signifies the concurrence of two events, one imagined and the other well-known. This definition is cited in Avicenna's al-Shifā', [1] Qushayrī's (d.465/1072) Risālah, [2] al-Marzūqī's Kitāb al-azminah wa'l-amkinah, [3] and in al-Jurjānī's K. al-Taʿrīfāt. [4]

The Muʿtazilite Abū'l-Ḥudhayl al-ʿAllāf, holding the theory that some accidents are susceptible of duration, defines time as the interval (farq or maḍāʾ) between the separate acts (afʿāl).[5] This view is in conformity with that of the Stoics. Al-Marzūqī finds Abū'l-Ḥudhayl's view very close to that of Alexander (probably Alexander of Aphrodisias). He reports on the authority of Ḥunayn b.Isḥaq that Alexander defines time as the duration which is prior to the motion of the sphere. It is the motion by which time numbers. Time is one in reality, not multiple. It is multiple only in the imagination, since time possesses multiplicity only potentially. [6]

---

1. See supra.
2. L. Massignon's article, op.cit., p.111.
3. al-Marzūqī (d.421/1030), K.al-azminah wa'l-amkinah, Vol.I. (Hyderabad, 1332H.), p.139.
4. al-Jurjānī, K.al-Taʿrīfāt, ed. by G. Flügel,(1845), p.119.
5. al-Ashʿarī, Maqālāt al-Islāmiyyīn, ed. by H. Ritter (istanbul,1930). p.443; al-Marzūqī, op.cit., Vol.I., pp.139 and 141.
6. al-Marzūqī, op.cit., Vol.I., pp.140-141.

Al-Ghazālī, defending the stand-point of the Mutakallimūn in his Tahāfut al-Falāsifah, seems to stress the subjectivity of time. He argues that future and past are relative to us.[1] Similar views are found in Hellenistic philosophy. Proclus in a passage of his commentary on Plato's Timeaus says that the Stoics and many Peripatetics assert that time is a mere product of thought.[2] One of the strongest expressions of the subjectivity of time is found in Alexander of Aphrodisias. According to him, man is the creator of time.[3] Al-Ghazālī's theory of the subjectivity of time, as in Hellenistic philosophy, must be treated with caution because in places he asserts that time is generated and created, and before it there was no time at all.[4] Such a view presupposes the reality of time, and the creation of time with the creation of the world. According to him, the world was created in time and time with it. Like space, time is finite, and has a beginning. He attributes the infinitude of time to the inability of our imagination to imagine the beginning of a thing without something preceding it.[5]

With Averroes [6], we return again to Aristotle's position.

---

1. For the subjectivity of Time in al-Ghazālī, see Averroes, op.cit., vol.I, pp.13 and 41.
2. Averroes, op.cit., vol.II, Notes, p.31.
3. The Cambridge History of Later Greek and Early Medieval Philosophy, ed.by Armstrong, (Cambridge, 1967), p.116.
4. Averroes, op.cit., vol.I, pp38.
5. Ibid., vol.I, pp.41-42.
6. For Averroes' view see Hanā al-Fākhūrī and Khalīl al-Jarr, Taʾrīkh al-falsafat al-ʿArabiyyah, vol.II, (Beirut, 1958), p.420.

According to him, motion can take place in time. When we imagine a movement, we find with it an extension, which measures it. Time cannot be understood without motion. The dependence of time on motion is much like the dependence of number on the thing numbered. Just as number does not become individualized through the individualization of the thing numbered, nor pluralized through its plurality, so it stands with the relation between time and motion. Time, therefore, is unique for all movement and for each thing moving, and exists everywhere, so that if we should suppose people confined from youth in a cave in the earth, still we should be sure that they would perceive time, even if they did not perceive any of the movements which are perceived in the world. The dubious point which we have already met in al-Ghazālī and others, namely, the subjectivity of time, crops up again in Ibn Rushd. What he means here is that time is something the souls construct in movement, or that it is nothing except what the mind perceives of the extension (imtidād) inherent in motion. It is for this reason, he says, that Aristotle thought that the existence of movements in time is much like the existence of the things numbered in number.

Time has no position, nor does it form a simultaneous whole.

Those things which are subject to motion cannot be separated from time. Time is only abolished in those things which are not subject to motion.[1] Neither God, nor His Acts can be comprehended in time and measured by a limited duration. God exists only in timeless eternity (dahr).[2]

Ibn Rushd defines 'now' as the present which necessarily is the middle between the past and the future. Or it is the end of the past and the beginning of the future. It is absurd to represent a present which is not preceded by a past. Furthermore, nothing can become in the 'now', so its privatioh must be in another now than that in which it itself exists, and there is time between each pair of instants, because 'now' is not continuous with 'now! Therefore before the 'now' in which the movement occurs, there must necessarily be a time, because, when we represent two 'nows' in reality, there must necessarily be time between them.[3] In this vein, he proves the infinitude of time and motion and consequently the eternity of the world.

In the above account we have seen that with al-Kindī the

---

1. Averroes,op.cit.,vol.I,pp.42ff.
2. Ibid.,vol.I,p.70.
3. Ibid.,vol.I,p.44.

perceptual time as a correlative or measure of motion starts to give place to the conceptual time as a duration measured by but independent of motion. Al-Shahrastānī, al-Ghazālī, and his Jewish commentator Narboni find traces of a conceptual time in Ibn Sīnā. Although Ibn Sīnā asserts in places that the continuity or duration forms the essence of time, in his neatly formulated definition he is closely attached to Aristotle's view. On the other hand, in the Mutakallimūn we find a purely subjective view of time and the identification of time with the indivisible 'now'. By doing so, they have broken the continuity of motion, time and space. This led them to the denial of causality in the world, and consequently they established God as the Absolute Sovereign of the whole universe.

Al-Ghazālī, without attaching himself to the atomic theory of the Mutakallimūn, from the correlation of space, time and motion, inferred that time has a finite duration and is created. In his objections to the Aristotelians he availed himself of the subjective view of time. With Ibn Rushd, the Aristotelian theory was restored.

IV. Absolute and Limited Time -

In dealing with the difficulties involved in the conception of time, Avicenna, as we have seen, mentions the view that time is a substance existing necessarily by itself. This view goes back to al-

Iranshahrī and his disciple Abū Bakr Zakariyyā al-Rāzī. As we know from a ninth century source, this view was held in Hellenistic philosophy by Galen. Again in this source, and in later Muslim philosophical literature it is curiously attributed to Plato.[1]

Al-Iranshahrī and Abū Bakr al-Rāzī held the eternity of five substances,[2] namely God, the Universal Soul, First Matter (hylé), Absolute Space and Absolute Time. Ibn Ḥazm and Ibn Taymiyyah[3] bring out a relation between this view and that of the Iranian Magians. According to them, the Magians also affirm of the five principles which are Ohrmazd, Ahriman, matter, time and space. Indeed there is a certain connection between al-Rāzī and the Magians, though the list of the eternals does not altogether tally with each other. The five eternals are the Creator, Ohrmazd, wisdom of the religion; space on which matter is dependent; and time which is the etenity of Ohrmazd. It is striking that, like al-Rāzī, they distinguished between Zurvān Kanārakōmand (Limited time) and Zurvān akanārak (Infinite time).[4] At a

1. S. Pines, A Tenth Century Philosophical Correspondence, op.cit., p.112; Opera Philosophica, ed. by P. Kraus, Vol.I., (Cairo,1939), p.278.
2. For this view see Opera Philosophica, op.cit., Vol.I., pp.190-216; al-Shahrastānī (d.548H), K.al-Milal wa'l-Niḥal,op.cit., p.241; S.Pines, Beiträge zur Islamischen Atomenlehre,(Berlin,1936),pp.58 and 60-62.
3. Ibn Taymiyyah, Minhāj al-Sunnah, op.cit., Vol.I., p.97; for Ibn Hazm's account see Opera Philosophica, op.cit., Vol.I., pp.183 f.
4. R. C. Zaehner, op.cit., pp.106 ff; H. Corbin's article, op.cit., pp.117 ff.

given moment finite time came into existence out of infinite time, and moves in a circle until it returns to its beginning, and then merges into infinite time.

Both al-Iranshahrī and al-Rāzī identify time with duration which is undetermined and has no connection with motion. But in so far as the number applies to it in virtue of motion, it is limited.[1] Out of the five eternals, two are living and acting: God and Soul; one is passive and not living: Matter from which all bodies are made; and two are neither living and acting, nor passive: Vacuum and Duration or time.[2] It was reported that this view was held by the Sābians of Harrān to whom al-Rāzī was attached.[3]

Time is an eternal substance that flows (jawhar yajrī). Al-Iranshahrī and al-Rāzī criticize those (i.e. the Aristotelians) who connected time with motion. They argue that if time were the number of motion it would not have been possible for two moving things to move in one time by two different numbers.[4]

According to al-Iranshahrī, time, eternal duration and duration are only the names which indicate one and the same substance. He considers five eternal substances from a theological point of view.

1. Opera Philosophica, op.cit., vol.I, p.195; see also A History of Muslim Philosophy, ed. by M.M.Sharif, vol.I, (Wiesbaden, 1963), pp.441-445; S.Pines, Some Problems of Islamic Philosophy, op.cit., p.75.
2. al-Marzūqī, op.cit., vol.I, p.144.
3. Opera Philosophica, op.cit., vol.I, p.213.
4. Ibid., p.266.

For him, time is the proof of God's knowledge just as space is the proof of God's omnipotence, movement of His action, and corporeal body of His power. Each of these are infinite and eternal.[1] Later, Ibn al-ʿArabī [2] held that eternity (dahr) is one of the attributes of God. In Islam, one of the traditions of the Prophet, namely, 'do not speak ill of dahr because God Himself is dahr', might have had some bearing on this view.

Similar views are found in the seventeenth century metaphysics. For example, H. More spiritualizes the nature of space; and the divine nature of time was put forward by the Belgian Mystic, J. B. von Helmont. [3] Newton considered absolute space and time to be the sensorium of God and His indispensable attributes.[4]

Fakhr al-Dīn al-Rāzī, attributing the view that time is a self-subsistent substance to a certain ancients, relates their arguments against objections.[5] Objection: time is something ever-flowing and ever-changing, in so far as its existence is concerned. What is so, therefore, can not possibly be a self-subsistent substance. Answer: time, in its essence and quiddity, cannot be conceded to be in flux,

1. Ibid.,pp.266ff.
2. A.E.Affifi,The Mystical Philosophy of Muḥyid Dīn Ibn ul-ʿArabī, (Lahore,1964),p.44.
3. W.von Leyden,Seventeenth Century Metaphysics,(London,1968),pp.229f.
4. Ibid.,p.241.
5. Opera Philosophica,op.cit.,vol.I,p.278.

ever-changing, and coming to an end. Why is it not permissible that it should be a substance subsisting past eternally and pre-eternally? In fact, continuous flux and change do not occur in the essence or substance of time, they occur only in so far as time is related to successive events.

The partisans of the substantiality of time further argue that time has no connection, either in itself or in its existence, with the celestial sphere and motion. The celestial sphere, by its motion, measures only its parts, just as a sand-glass measures, in virtue of its various states, parts of the day and night. If in this substance which subsists by itself a kind of motion is realized, and the extension of its duration is measured by this motion, it is called time. But if it has no connection with motion, and in it occurs no change it is named dahr, azal and sarmad.

This last division which corresponds in Abū Bakr al-Rāzī to Absolute and Limited time is found in Avicenna. According to him, time, dahr and sarmad pertain to different domains of existence. Dahr

is above time, and sarmad is above dahr.

Avicenna[1] rejects the view according to which dahr is the duration of immobility, or a time not numbered by movement. The fact, he says, is that duration and time cannot be conceived without in their essence inhering before and after. If before and after inheres in it, then it has a continuous change of states and it will not be devoid of motion. And in rest also exist prior and posterior.

For Avicenna, eternal duration co-exists with and encompasses time, but it is not time. It is related to every unchangeable being. Eternal duration, therefore, has a semblance of time, but is not real time.

Avicenna defines eternal duration in another context asthe motion which is perceived by the intellect of the relation obtaining between the durable things and the Soul, namely, the Universal Soul, at all time.[2] Soul (i.e. The Universal Soul) is the cause of the existence of time.[3] This notion taken from Plotinus and with some modifications from the K.al-khayr al-mahd (Liber de Causis) which

1. Avicenna, al-Shifā', op.cit., vol.I, p.81.
2. Avicenna, Risālah fī'l-Ḥudūd, in Tis' Rasā'il, (Egypt, 1326/1908), p.92.
3. Avicenna, 'Uyūn al-Ḥikmah, op.cit., p.29.

contains extracts from Proclus' Elements of Theology[1] is generally accepted in Muslim philosophy.

Nāṣir-i Khusraw, when citing the view of those who assumed that time is a substance, eternal, and self-subsistent, relates that the eternal duration is not time; it is on the contrary, the life of the living immortal, just as time is the life of the living mortal. The term 'time' cannot, therefore, be attributed to spiritual entities.[2] This view had a considerable influence in the formation of the Isma'ilite cosmogony.[3]

The distinction between dahr and zamān is also treated in a treatise called "what is the difference between 'dahr' and 'time'." (mā al-faṣl bayn al-dahr wa'l-zamān): 'Dahr is the number of permanent things, and time that of temporal objects. Both numbers count only the things, namely, the life and motion. Everything which numbers, numbers either one part after another, or the whole at once. Consequently we say that the thing which numbers the whole is dahr, and the thing which numbers the parts, one after the other, is time. It is then evident and true that number is of two kinds. One numbers the permanent spiritual things, and is called dahr; and the other numbers the

1. Proclus puts time above Soul, and eternity above the Pure Intellect. According to him, as eternity is more than mind, which it contains, so time is more than soul. See Proclus, The Elements of Theology, ed. and tr. by E.R.Dodds, (Oxford, 1963), props. 52-55, pp. 51-55; see also T.Whittaker, The Neo-Platonists, (Cambridge, 1928), p. 283.
2. Opera Philosophica, op.cit., vol.I, p.270.
3. H.Corbin's article, op.cit., pp.144f.

particular things which are subject to time, and is the number of the motions of the celestial sphere.[1] Al-Jurjānī in his Kitāb al-Taᶜrīfāt [2] gives the definition that 'dahr is the extension of the divine presence; it is the basis of time and enfolds in itself eternity and perpetuity.' Such views taken from the Neo-Platonic sources played an important role in the development of the later mysticism in Islām.

According to al-Iranshahrī and al-Rāzī, such clear-cut distinctions are superficial, and irrelevant to the essence of time. Time, duration and eternity all indicate one and the same substance, namely, absolute time.

Another point which is of considerable importance to our treatment of Abū'l-Barakāt's conception of time is al-Rāzī's view that the knowledge we have of time is self-evident and needs no demonstrative proof. Common people and the learned alike know time a priori.[3]

1. Opera Philosophica,op.cit.,vol.I,p.270.
2. al-Jurjānī,op.cit., p.111.
3. Opera Philosophica,op.cit.,pp.264 and 272f.;al-Marzūqī,op.cit.,p.148.

V. Abū'l-Barakāt's Theory of Time. -

Abū'l-Barakāt treats of time both in his Physics and in his Metaphysics. In the Physics the problem of time is only introduced for the sake of the problem of motion. He says at the beginning of the section on time that 'since motion takes place in space and in time, having already discussed space, we, now proceed to explain time'. Therefore, according to this view, we must know the problem of space, time, and various other problems such as matter, principles and causes before proceeding with the problem of motion.[1] This is the very method the Aristotelians have already used. But, unlike the Aristotelians, Abū'l-Barakāt carries the problem of time over to the domain of Metaphysics. In the Metaphysics he answers the questions left in suspense in the Physics. It may, therefore, be said that, according to him, the problem of time, in so far as it is supposed to be connected with motion, belongs to the Physics, but in so far as its real solution is concerned, it belongs to the Metaphysics. It is in virtue of the solution given in the Metaphysics to the problem of time that the close link between the physical and the metaphysical domains is, as we shall see, established.

---

1. K. al-Muʿtabar, op.cit., Vol.II., p.69

Time, Abū'l-Barakāt argues, is self-evident in common usage and according to the first mode of knowledge, intelligent men have of time, but in so far as the perfect logical and intellectual definition of time is concerned, it is obscure, ambiguous and hidden. This is the reason why time is variously defined by the intelligent men. [1] This point was already stressed by Plotinus and others. According to Plotinus, we derive our knowledge of time from two sources; (a) Everyone thinks that he knows what time is, at least until he tries to give an explanation of it. This common knowledge of time is something we must consider, and any detailed examination of time must not be out of harmony with it. This conviction of men must be a common ground of all philosophical explanations. (b) Philosophical investigation carried on according to a definite method, that is, to relate time to its natural predecessor, eternity.[2] Indeed, our self-evident knowledge of time forms the backbone of Abū'l-Barakāt's own theory, as in Abū Bakr Zakariyyā al-Rāzī.

a) Is Time Connected with Motion?

According to Abū'l-Barakāt, common people believe that time is a function of movement. In common usage (fī'l-ʿurf al-ʿāmmī),

1. Ibid, Vol. II, p.69, and Vol.III, p.36
2. Plotinus, Enneads, III, 7, 10 f.

time is a thing in which motions take place, and agree or differ as to simultaneity, priority and posteriority. It is in relation to time that their fastness and slowness are determined. They divide time into past, present and future, and into parts called days, hours, years and months. They determine its parts with reference to motions, as, for example, days are determined by the sunrise and sunset, months by the revolutions of the moon, years by the revolutions of the sun. Or they determine its parts with reference to certain temporal conditions (bi ḥālāt min al-ḥālāt al-zamāniyyah), like cold and hot seasons. They have an a priori knowledge that there exists a thing, namely time, and that its existence comes to an end and arises anew in such a way as to correspond to the passage of motion. They similarly know that the parts of time are irreversible: the past time cannot subsist with the future time, nor one day with another day and so on.[1]

The learned men, Abū'l-Barakāt continues, enquired whether time is an object of perception. They realized that they could not perceive it in virtue of essence, since it was not a colour so that the eye could perceive, and it was not a sound so that the ear could hear, nor was it

1. K. al-Muʿtabar, op.cit., Vol.II., pp.69-70.

the quality of hardness or softness to be sensed by touch. Furthermore, they could not perceive it in virtue of accident, which accompanies primarily that which is perceived by itself, as in the case of transparency in so far as the visible things are concerned, and as in the case of a void in so far as the things perceived by touch are concerned. Although we do not perceive 'transparency' and 'void' according to essence, we perceive them according to accident. Time, therefore, cannot be perceived in any of these ways.[1]

Having considered intellectually the questions what time is, how it exists, and whence it comes about, they concluded that time pertains to motion like a measure which measures distances (fa wajadūhu li'l-harakāt ka'l-miqdār al-muqaddir li'l-masāfāt). The prior and posterior in motion and time cofresponds to the prior and posterior in distance; while distance remains as it is before and after the motion of that which moves in it, time does not endure, and is always in process, whether a moving object is in motion in time or is at rest. Unlike in distance, prior and posterior in time are irreversible. On the other hand, a number of motions taking place at a certain time in various distances participate in one and the same time. Therefore, priority and posteriority (al-qabliyyah wa'l-baʿdiyyah), passage

1. K. al-Muʿtabar, op.cit., Vol. II., p.70.

(al-taṣarrum), and continuous change (taʒaddud), pertain to time essentially (bi'l-dhāt) and to motion accidentally. They further said that motion is in time and not that time is in motion. The multiplicity of motions taking place in time is much like the multiplicity of movables inhering in one and the same distance (fī'l-masāfat al-wāḥidah).[1]

From the fact that time exists together with motion as well as with rest, and from the fact that the fastness and slowness of motion is determined by time, they inferred that the knowledge of time occurs to our minds prior to the knowledge of motion. Therefore, according to them, time is prior to motion in existence just as distance (space) is prior to motion. For motion cannot be conceived by him who cannot conceive of time, just as it cannot be perceived by him who cannot conceive of space. Time, however, can be conceived without motion taking place in it, since motion is only possible in time, i.e., motion is capable of taking place in it. Time is that in which motions can take place, or in which they actually exist, agree or differ as to simultaneity, priority and posteriority. Time is other than distance, because two moving objects agree in time, but differ in distance, or differ in time but agree in distance. Time is also other than the initial and

1. Ibid., p.71.

final points, because two movables agree in time, but differ in their initial and final points. Time is other than motion (ghayr al-ḥarakah) because many motions different in themselves, possessing many movables, distances and directions take place in one and the same time. [1]

It is not right to say that time is identical with one of the motions, namely the motion of the sphere of the celestial equator (falak muᶜaddil al-nahār), because it is the fastest of motions. It being so, it partakes of the same quiddity as the other motions do, but it differs from them in virtue of the external concomitant accidents (bi-ᶜawāriḍ lāzimah khārijiyyah). Fastness and slowness are the accidents accompanying the motions taking place in various distances and times. The fast motion is that which traverses a longer distance than the slow one does in one and the same time, or it traverses the same distance in a shorter time than the latter. This argument is substantially the same as the one cited by Plotinus [2] against the identification of time with the motion of the celestial sphere, and implies that this very motion is also in time. He who has gnosis (al-ʿārif), knows that time is other than motion, movable and distance

1. Ibid, pp.71-72.
2. Plotinus, Enneads, III, 8, 1f.

in its absolute being (bi-anniyatihi al-mutlaqah), while he does not know its abstract quiddity. Therefore the definition of time consists in explaining the term 'time'. Time is, partly, explained as that in which the motion of that which is at rest is possible, or the motion of the movable actually takes place, and as that whose existence can not be suppressed in the minds. This exposition of the term 'time' is in keeping with our knowledge, for the primary knowledge of time is acquired by the soul itself whether the motions and the movables are supposed to exist or not and whether we are aware of them or not.[1]

As we have already seen, the Aristotelians held that time cannot be conceived except with motion, and cited as an example the sleepers of Sardinia in the case of Aristotle and the Companions of the Cave in the case of Avicenna.[2] Abū'l-Barakāt argues that the Companions of the Cave were not aware of time just as they were not aware of other things. For he who is asleep cannot have consciousness of other things, whether it be motion or time. But if they were awake in the cave in the dark, there would not pass an hour of which they could not be aware. Therefore, according to him, we perceive time

---

1. K. al-Muʿtabar, op.cit., pp.72-73.
2. See Supra.

even though we do not perceive any motion whatsoever. [1]

He also argues that he who is aware of motion is aware of the prior and posterior in distance, without there being any combination between the prior and posterior. They are, rather, combined in the mind. This kind of prior and posterior represent time. It can, therefore, only be said that motion cannot be conceived except with time.[2] This is in complete contrast with the Aristotelian view.

Aristotle's definition of time as the measure of motion does not escape Abū'l-Barakāt's criticism. Here he takes up the cudgels against this definition. According to him, the Aristotelians argue that time exists in motion like the measure pertaining to distance. In fact, Abū'l-Barakāt asserts, time subsists despite the removal of all motion. This is not the case with the measure of distance, for this measure cannot be abstracted from distance. Measure, in customary usage (fī'l-ʿurf), is said only of a part of the whole by which the whole is measured. According to them, motion is measured by time and time by motion. But none of them is more fitting to measure

1. K. al-Muʿtabar, op.cit., Vol.II., p.73
2. Ibid., Vol.II., p.73.

than the other (laysa aḥaduhumā bi-taqdīr al-ʾākhar awlā min al-ʾākhar bi-taqdīribi).[1]

So far I have followed Abū'l-Barakāt's account in the Physics of the K. al-Mu'tabar. In the Metaphysics we find Abū'l-Barakāt more concise and to the point. Moreover, it reflects Abū'l-Barakāt's personal reflections and originality.

According to our primary knowledge of time, time is connected with motion. It measures motion, just as it is measured by it. However, motion, apart from time, is also connected with (a) the initial point, (b) the final point, (c) distance, (d) mover, (e) that which is moved. Time is none of these things.[2]

To prove his case, Abū'l-Barakāt imagines three balls equal in magnitude, moved by three different men at the same time at various speeds. Supposing that the fastest and slowest moving balls has stopped at the same time, the former having completed two revolutions, and the latter one. The third ball which has an intermediary speed would then stop before both after having completed one revolution. In the former case, the fastest and slowest moving balls agree in the duration of their motions, but differ in distance, since the fastest traversed twice the

1. Ibid., Vol. II., p.76
2. Ibid., Vol.III., p.36

distance. The same difference in distance is also found between the fastest moving ball and the one which has an intermediary speed. As for the ball which has an intermediary speed, although it traversed the same distance as the slowest one, it differed from it in the duration of its motion. Time is, therefore, independent of all these factors, namely distance, fastness and slowness, the movable and motion. [1]

Having reflected mentally on time and duration (al-muddah wa'l-zamān) in respect of motion, let us now suppose, Abū'l-Barakāt continues, one of these balls to be at rest. This will not affect in any way the duration of the motions of the two other balls. Therefore, time and duration persists in existence (mustamirrah fī'l-wujūd) together with the motions of those things which move as well as with those things which are at rest and with the removal of any motion whatsoever. If, on the other hand, the slowest moving ball mentioned above came to rest as soon as the fastest moving ball started its motion, and stayed at rest as long as the latter was in motion, then the alternating motion and rest would agree in duration, nor would there be any change in duration. Even in the case of all the movables coming to rest and all that is at rest starting to move our notion of duration does not undergo any change

1. Ibid., Vol.III., p.37

whatsoever, either in the mind or in existence. A definite duration is conceived in the mind (maʿqūlah) as existing with the motion of all that is in motion and with the immobility of all that is at rest. Indeed it is in this duration that all these take place. The existence of motion is connected with time and duration, whereas the existence of duration and time has no connection with motion, nor with rest. Therefore, the notion of time, in existence and in its intelligible nature, is prior to every motion and every rest. By the removal of any of these, time cannot be affected. Time persists in existence apart from motion and rest, but without time and duration, motion and rest cannot persist. [1]

b) Time and Existence.

As we have already seen, together with time and soul we have an apriori conception of existence. Our consciousness of our being is the proof of existence in general. Time, existing apart from motion and rest and everything that exists in it, comes very close to the concept of existence and is conjoined with it in conception (fī'l-taṣawwur). The mind does not conceive of existence as one of the sensible things, rather it conceives of the sensible and insensible things as being in it.

1. Ibid., vol.III., p.39

In a mental supposition (fī'l-farḍ al-dhihnī), the sensation of an individual endowed with a sensitive faculty can be suppressed, but the existence of an existent cannot be suppressed in virtue of this. The mind, prior to its apperception of other things, conceives and has apperception of existence together with the apperception of its own self. It has also a similar apperception of time. Therefore it is more fitting to define time as the measure of being than to define it as the measure of motion. Not only is motion determined by time, but also rest is determined by it, and both equally partake of existence.[1]

1. Our immediate knowledge of time, existence, and soul is stressed throughout Abū'l-Barakāt's Metaphysics. We have, according to him, an equal degree of consciousness of our soul, existence and time. It is in virtue of this theory of consciousness that Abū'l-Barakāt is able to dispose of the view that makes time as a function of motion. He argues in connection with his theory of existence in this vein: 'some of the things which are not perceived by the senses are more obscure for the intellect and more remote for us than others in so far as the degree of knowledge we have of them is concerned. On the other hand, there are other things which are better known and more manifest to the mind with respect to their quiddity and substance

---

1. Ibid., Vol.III., p.39

despite their being far from being perceived by the senses. These things are time and existence. Existence is more manifest than any other hidden thing, because he who is aware of his own self is also aware of his own existence. Similarly he who is aware of his own action is also aware of his own self that is acting and of the existence of his own self as well as of that which is produced by it and results from its action. Therefore he who is aware of his own self is aware of existence, namely, the existence of his own self. And he who is aware of his own action is aware of it and of the agent. Neither the élite nor the common people doubt the existence of the agent. Similarly every man or most men are in general aware of time; of today, yesterday and tomorrow, and of past and future, remote and near time, even though they have no knowledge of its substance and quiddity. They are similarly aware of the fact that existence is, even if they are not aware of its quiddity.[1] According to him, every existent exists either in external reality or in the minds or in both. He curiously goes on to say that what is existent in the minds is also existent in external reality because the minds exist in external reality.

As we have already seen, Abū'l-Barakāt modifies the Avicennian view that existence is superadded to the essences, and that essences

---

1. K. al-Muʿtabar, Vol.III, pp.62-63.

would not exist without the superimposition of existence upon them. Although Abū'l-Barakāt sometimes identifies essences with mere mental forms, they have no real ontological status in his philosophy. According to him, existence is superadded to existents. Existents exist in virtue of existence and similarly existence exists in virtue of existence. This existence ends in an existence that is existent in virtue of itself and not in virtue of existence that is its attribute. Abū'l-Barakāt calls this existence an existent existence. Therefore, existent and existence are identified by him in God. Only God is the true existence. [1] This theory obviously bears the traces of the mystical pantheism which is exemplified in the theory of the 'unity of existence'.

To-be or not-to-be can beither be predicated of existence, nor of time. Such predications belong only to existents.[2] Therefore, according to him, existence and time has an extra-mental reality. Existents are transcended by the notions of existence and time.

Abū'l-Barakāt's definition is reproduced by Fakhr al-Dīn al-Rāzī in his Kitāb al-Matālib al-ʿāliyyah, where he finds this definition

1. See supra, pp.99 - 104.
2. K. al-Muʿtabar, Vol.III, p.40.

obscure and ambiguous, and amplifies it to the effect that time is the measure of the duration of existence. [1] Leaving aside his Aristotelianism, al-Kindī, by defining time as the duration of the existence of a thing, so long as it exists, comes close to Abū'l-Barakāt's notion, and the latter might have been influenced by the former in this respect. S. Pines in his Nouvelles Études [2] tries to establish similarities between the doctrines of Saadia (892-942) and Abraham bar Hiyya (first half of the 12th Century) and that of Abū'l-Barakāt. In fact the view of both Saadia and Abraham bar Hiyya goes back to that of al-Kindī. It can, therefore, rightly be said al-Kindī's view might have been the starting point of Abū'l-Barakāt.

Having put time and existence on equal footing, Abū'l-Barakāt tries to explain the concept of measure. According to him, the measure of a corporeal body is not external to the body itself. The magnitude of a big body with respect to the magnitude of a smaller body is determined by corporeity, not by quantity. (bi-jismiyyah wa lā bi-kammiyyah). Quantity is what is conceived of this surplus in relation to the magnitude lacking in the smaller body. For quantity is the

1. Opera Philosophica, op.cit., p.278
2. S. Pines, Nouvelles Etudes sur Awḥad al-zamān Abū'l-Barakāt (Paris, 1955), pp.67 ff.

knowledge of the relation obtaining between the bigger and smaller bodies in the case of continuous quantities, and between the less and the more in the case of discrete quantities. Quantity, is, therefore, a mentally conceived relation (fa'l-kammiyyah mu^{c}tabarah fī'l-adhhān). What exists in external reality is not the magnitude but the big objects, and similarly not the number but the things numbered. It is in this way that time measures being, not as an accident subsisting in the latter but as a mentally conceived relation between that which has more of being and that which has less. People, in their customary usage, speak of permanent and impermanent existence, long and short existence, i.e., with respect to its duration, just as it is said of a body to be long or short, i.e. with respect to its measure (al-miqdār). Therefore, according to him, the same relation as exists between the measure and the measured exists also between time and existence. Just as we cannot conceive of the annihilation of existence in the minds, so we cannot conceive of the annihilation of time.[1]

When someone by way of prayer (fī du^{c}āihi) says to someone, 'may God prolong your life', he means the prolongation of his existence, not his time. For time pertains only to that which exists by virtue of its existence persisting in it (i.e. time). On the other hand,

1. K.al-Mu^{c}tabar, op.cit., Vol.III., pp.39-40.

time can be neither long, nor short, it always persists. Only the existence of that which exists more or less persists together with the persistence of time. Therefore, it is more appropriate for time to be the measure of existence than that of motion. [1]

c) Time, God and Creation.

Abū'l-Barakāt inserts the section on time in his Metaphysics, into the section on the eternity and temporal creation of the world. This is because, Abū'l-Barakāt says, a profound study of these opposing views requires a profound study into the nature of time. [2] We have already mentioned that there are strong indications in favour of the eternity of the world in Abū'l-Barakāt's philosophy. One of these indications, perhaps the strongest one is found in his theory of time.

According to him, those who believed that time had a beginning, because it has no separate existence, nor subsisting by itself, should also believe in the temporal production of existence. How, then, could it be said that prior to the temporal production of the world there existed no time? This is an assertion that the mind does not admit. For it has been established by a theoretical investigation(nazar)

1. Ibid., Vol.III., p.40
2. Ibid., Vol.III., p.35.

that time cannot be annihilated except with the annihilation of existence. Existence cannot be non-existent, nor can it be existent. Therefore it cannot be said of existence that it exists, or that it does not exist. Non-existence can only be predicated of that which exists. Time, being on equal footing with existence, the above argument is also valid for time.[1] This is obviously the proof of Abū'l-Barakāt for the reality of time. But how is his statement that neither existence nor non-existence can be predicated of time and existence to be explained? According to him existence and non-existence can only be predicated of the existing things. Taking 'existence' in the absolute sense, that is, as an attribute which is superadded to the actually existing objects, it does not have 'existence' or 'non-existence' as its attributes. Otherwise, we could never differentiate between existence and the existing things. Abū'l-Barakāt, endowing 'existence' with an extra-mental reality, tries to save the efficient causality of God. Everything existing in external reality owes its existence to the efficient causality of God who is 'pure existence'. Time, being inseparable from existence, has the same ontological status in Abū'l-Barakāt's view. Just as existence is better known than things which exist in external reality, so time is better known than those things, which coexist with it. According to our first mode of knowledge, which is

1. Ibid., Vol.III., p.40

deficient and imperfect, as well as according to our second mode of knowledge which is perfect, time, like existence is anterior to everything in the intellect. Man can conceive a time prior to every beginning which is conceived by the mind and intellect. He can not conceive a time which was the beginning and prior to which there had not been time. Conceptually time cannot be suppressed.[1]

By conjoining time with existence, and by accepting their eternity, Abū'l-Barakāt solves the difficulty which led the Aristotelians to make very subtle distinctions between time, eternal duration and perpetuity to preserve the dichotomy between the material and spiritual worlds. According to him, the mind cannot conceive of existence without duration and time, whether it be that of the Creator, or that of the created.

It is only those who defined time as the measure of motion that abstracted the existence of God from time. Since they believed that the Creator does not move, they were compelled to say that He is not in time. They said that God exists in eternity (dahr) and in perpetuity (sarmad). They even went so far as to say that the existence of God is the eternity and perpetuity. If it is asked what dahr and sarmad is, they would answer, saying that it is the permanent duration

---

1. Ibid., Vol.III., p.40

(al-baqāʾ al-dāʾim) and not accompanied by motion. In fact permanence is one of the attributes of duration and time. Therefore they have only substituted other terms such as dahr and sarmadefor time. Like Abū Bakr Zakariyyā al-Rāzī, but in contradistinction to the Aristotelians, Abū'l-Barakāt does not differentiate these terms. For him, they have one and the same meaning. [1]

d) The Reality of Time.

According to Abū'l-Barakāt, our knowledge of things are not all in the same degree. Our first mode of knowledge is simple and deficient, whereas the second and the third modes of knowledge are complex and perfect. The deficiency of our first mode of knowledge is due to our inability to rise above the knowledge of the individual in order to perfect it by the knowledge of species and genus. The second and third modes of knowledge, in turn, attain their perfection by comprehending such knowledge. The knowledge of knowledge (maʿrifat al-maʿrifah), the highest knowledge belongs to this second category. We perfect our imperfect and deficient knowledge pertaining to sensible things either by our second mode of knowledge pertaining again to sensible things, or by that pertaining to what is conceived by the mind. For example, we perceive a body composed of small particles of

1. Ibid., Vol.III., p.41

different colours as if it had a unified colour but when we look at it attentively, we see that it is composed of various colours. Again we see the sun small by the sense of sight, but having reflected on this according to an intellectual inference (bi'l-qiyās al-ᶜaqlī) we know that it is of immense magnitude.

We, on the other hand, perfect our knowledge pertaining to intelligible things by that pertaining again to intelligible things. Our knowledge of time is of this kind. Time cannot be perceived a priori by the senses, rather it is apprehended by the mind. Everybody knows time a priori without any reflection whatsoever. It is when we try to perfect our knowledge of time that differences of opinion occur. This is the case with the intelligent man who held opposing views on time. [1]

On another occasion, he says that time is a mentally conceived relation between the different durations. However, we must not be misled by such statements that, according to Abū'l-Barakāt, time is purely mental. He, in fact, holds the contrary view. He considers mind as an instrument by means of which time is known. By saying that time is a mentally conceived relation, he means that without the mind we can have no apperception of this relation. [2]

1. Ibid., Vol.III., pp.35-36.
2. Ibid., Vol.III., p.40

Abū'l-Barakāt stresses the reality of time on various occasions. Arguing against the view that time is purely mental, he says that if it were purely mental, it would be devoid of the judgements belonging to that which exists in external reality. The mind has a primary apperception of its existence and of its being determined according to a posited measure corresponding to that which exists in external reality. As in the case of the existent objects, we can assert of time that its part is not equal to its whole. Indeed no man endowed with reason can say that an hour is equal to a day, or a day to a month. Therefore how could something which cannot be separated from that which exists, and which is defined and determined together with that which exists be considered as non-existent.[1]

Abū'l-Barakāt argues in the Physics of the K. al-Muʿtabar that if time were an accident existing in the minds, it would either subsist in the mind as an accident pertaining to the things existing in the mind, like the notions of universal, particular, genus and species. What is, then, the thing in which time inheres as an accident. We do not know anything whose removal in the mind would imply the removal of time. Or time would be an accident inhering in the mind primarily,

---

1. Ibid., Vol.III., pp.37-38.

and having no connection with any other thing. This is absurd, because that which exists in the mind without existing in external reality can only be a meaningless nonsense.[1]

Therefore, according to Abū'l-Barakāt, time is real in the sense that it is inseparable from existence. It is a mentally conceived relation in so far as we determine different durations pertaining to existence in the mind. Mind is only an instrument to bring out this relation.

e) Time and Abū'l-Barakāt's Philosophy.

Time has a special place in Abū'l-Barakāt's philosophy. Time and existence, being inseparable and prior to everything in our consciousness, are the most important constituents of the material as well as the spiritual worlds. It is because of the close connection between time and existence that the unbroken continuity between the two worlds is established. Even God is not devoid of temporal relations. This is especially manifest in his theory of God's knowledge of particulars and in his theory of God's volition. His starting point in both theories is the analogy he establishes between God's knowledge and volition, and men's knowledge and volition.

---

1. Ibid., Vol.II., p.76

Abū'l-Barakāt, in his human psychology, deals with the limited nature of our perceptions. According to him, perception (idrāk) is a state of relations pertaining primarily and essentially to the thing which perceives with regard to the thing perceived. Without these two terms, this state of relation cannot exist. There is, therefore, no perception of any sort of a non-existent thing. Supposing that there is, then this is not the case of true nothingness. We know that the existence of a perceiving subject and a perceived object is not sufficient for a perception to exist. For if it were so, the human soul would perceive all the existents it was to perceive. Thus, there would be nothing that was hidden to it. But in fact what it does not know exceeds by far what it knows. Therefore, it is in need of a mode (hal) which is super-added to its existence and to that of perceptible things in order to attain knowledge and perception of what it actually perceives.[1] Our perceptions are limited by the need of a mode subsisting between them and the perceptible things. This is made clear also in another context where he says: Between the souls there exists a gradation as to their capacity of apprehending things. Some of the souls have more capacity than others. The role of the body is to determine the object

---

1. K. al-Muʿtabar, Vol.II., p.323

which the soul perceives at any given instant, and the temporal order of its perceptions, because the body itself is determined by its organs, by the place it occupies and by its motion and rest. We see that which is before our eyes and hear that which is as near as is possible for us to hear, and have the sensation of touch of that which we touch. It is so with other perceptions. In this respect the soul is where the body is. The body is for the soul what nest is for a bird and house for him who inhabits it. If there had been no body, the soul would not have received these determinations; it would not perform one thing rather than another among the multitude of those things which co-exist in time and place. Each organ of the body supplies the soul with a category of activities. Therefore, in answering the question why the soulddoes not know all that which exists, he resorts to the senses which at once limit and render possible the perception. The function of the body and the corporeal organs are indispensible, because of the limited character of the faculty of apprehension and perception of the human soul. The soul can only have one perception at a time because of the nature of the bodily function and is brought into contact with others which have been perceived before and will be perceived later. In the absence of these bodily functions, the soul, when placed before the multitude of events, could not make the choice necessary for perceiving at least one part and for acting.[1] Therefore,

1. K. al-Muʿtabar, Vol.II., pp.345 ff.

the body and the sense organs provide for the soul the condition necessary for an ordered experience. But a soul endowed with a faculty of infinite perceptions and capable of apprehending as far as possible the totality of events would have no need of these conditions.

We have, therefore, limited perceptions of things because such activities are determined both spatially and temporally, owing to the limitedness of our body in which the soul is and of our organs which are the instruments of our perceptions. It is here that Abū'l-Barakāt's theory of attention (iltifāt) comes to the fore. He differentiates two kinds of attention: (a) voluntary attention; for example, we drink repugnant mixtures because they have a beneficient effect, and we endure fatigue in the hope of pleasure, (b) Natural attention which is also called by him instinctive (ilhāmī); for example, a child avoids what frightens him and hurts him, and comes near to what pleases him. The human soul cannot all at once direct its attention to many things. For those which it sees distract it from that which it hears, those which reach it through the external senses from those which internal senses bring to it. On the other hand, when it is turned towards itself it is not occupied with the rest.[1]

Taking the statement that a soul endowed with a faculty of

---

1. K. al-Muʿtabar, Vol.II., p.351

infinite perceptions and capable of apprehending as far as possible the totality of events would have no need of these conditions, at its face value, we may be misled to thinking that God's perceptions are limitless and encompass everything. According to Abū'l-Barakāt, this is not so even in the case of God. God also has His limitations which are due to the infinite number of things He would have to apprehend, not to His impotence. This view he obviously infers from a pomparison between human perceptions and those of God. This point will become clear if we turn our attention to his theory of God's attributes. In contradistinction to Avicenna, Abū'l-Barakāt affirms of the essential attributes of God. The essential attributes of God such as will, generosity, knowledge, etc., rest with the essence of God, in other words, they are the properties of God's essence. God can differentiate between the state of being generous and non-generous. As a result of this differentiation He prefers generosity to non-generosity.[1] All the attributes existing in this world must, in the last resort, be referred to God, He being the originative principle of all attributes.[2] These attributes are normally abstracted from God's essence by the Aristotelians because it implies imperfection and

---

1. K. al-Muʿtabar, Vol.III., pp.67-69.
2. Ibid., Vol. III., p.104.

temporality in God. This view, according to Abū'l-Barakāt is not valid. He explains in his theory of intellection that intellection is one of the activities of the intellect. Activity following upon the essence from which it proceeds, how could something be constituted by that which follows from it in time and essence.[1] Through these attributes God is in direct contact with everything except those things which are outside the scope of God's comprehension and attention, namely, the non-existent things [2], and the change-events.[3]

As it is clear from the above account which he gives in his Metaphysics, God's activities, like those of man, are not free from temporality. This culminates in the view that God is not beyond time.

The difference between man and God is one of degree: God's knowledge and volition are more comprehensive than that of man. Unlike the Aristotelian God who is static and acts through the intermediaries without Himself acting, knows only Himself, and other things in a general way instantaneously, Abū'l-Barakāt's God is active and in

1. K. al-Muʿtabar, Vol.III., pp.72-73.
2. Ibid., Vol. III., p.75
3. Ibid., Vol. III., p.188-189.

direct contact with the material world. According to Abū'l-Barakāt, even God's knowledge is restricted, but this, in no way, implies impotence on His part. For the obstacle to such knowledge is not found in the knower, but in the infinity of things He would have to apprehend. In taking such an uncompromising attitude, he would certainly not have gained the favour of either the Aristotelians, or the Theologians.

His personification of God - it is perhaps right to call his God Supreme Man - might have influenced the later mystical theories of the 'Perfect Man'.

CONCLUSION.

Abū'l-Barakāt's philosophy is determined by his critical attitude against the Aristotelian philosophy. In this he was helped by his fore-runners among whom John Philoponus and Abū Bakr Zakariyyā al-Rāzī especially stand out, not to mention those in whose writings are found sporadic un-Aristotelian statements.

However, his originality lies in his appeal to the self-evident truths of the mind. His starting point can be discerned in Avicenna's theory of the self-evident nature of the soul, and that of existence. The fundamental difference between Abū'l-Barakāt and Avicenna manifests itself in the fact that the former uses it as a philosophical method.

We have three a priori conceptions. That of Soul, that of existence and that of time. Soul has apperception of itself prior to everything else. At the same time as its apperception of itself, it has also apperception of its existence and existence in general. Similarly, time is apprehended by everybody, the learned and ignorant alike, prior to everything and is inseparable from existence. In fact, it is the measure of existence; just like existence, it cannot be annihilated. Therefore time and existence are eternal.

The Aristotelian correlative conceptions of space, time and motion are not altogether in harmony, since, according to them, space is

finite in magnitude, whereas time and motion are infinite. Such disharmony between these notions was considered to be open to criticism, and incompatible with the theory of the eternity of the world. Instances of this we find in al-Kindī and al-Ghazālī. al-Kindī, accepting the finitude of space, time and motion, put forward arguments for the temporal production of the world (ḥuduth). Abū'l-Barakāt held the opposite view and accepted the infinitude of space, time and motion.

Finally, the large gap created by the Aristotelians between the material and spiritual worlds was bridged by Abū'l-Barakāt in accepting the temporality of both domains.

LIST OF WORKS CITED

Abu'l-Fidā, Kitāb al-Mukhtaṣar, vol.III, (Miṣr, 1323H.).

Affifi, A.E. The Mystical Philosophy of Muḥyid Dīn Ibn ul-ʿArabī, (Lahore, 1964).

Afnan, S.M. Avicenna, His Life and Works, (London, 1958).

Ahlwardt, B.W. Die Handschriften-Verzeichnisse der Königlichen Bibliothek zu Berlin, vol.X, (Berlin, 1899).

A History of Muslim Philosophy, ed. by M.M. Sharif, 2 vols., (Wiesbaden, 1963).

Anawati, G.C. Essai de Bibliographie Avicennienne, (Cairo, 1950).

Aristotle, Works, ed. by W.D. Ross, (Oxford, 1926, etc.).

al-Ashʿarī, Maqālāt al-Islāmiyyīn, ed. by H. Ritter, (Istanbul, 1930).

Augustine, St. Confessions, tr. by E.B. Pusey, (Chicago, 1948).

Averroes (Ibn Rushd), Tahāfut al-Tahāfut, ed. by M. Bouyges, (Beirut, 1930) ; tr. by S. van den Bergh, The Incoherence of the Incoherence, 2 vols., (Oxford, 1954).

Avicenna (Ibn Sīnā), Mantiq al-Mashriqiyyīn, (Cairo, 1328/1910).

--------, Kitāb al-Shifāʾ, 2 vols., (Teheran, 1303/1886).

--------, Kitāb al-Najāh, ed. by Kurdī, (Cairo, 1938).

--------, Funūn-e samāʿ-e tabīʿī ez Kitāb-e Shifāʾ, tr. into Persian by M.A. Furūghī, (Teheran, 1319/1940).

--------, Avicenna's Psychology, tr. by F. Rahman, (Oxford, 1952).

--------, Tisʿ rasāʾil, (Istanbul, 1298).

--------, Kitāb al-Mubāḥathāt, published in "Arisṭū ʿind al-ʿArab" by A. Badawī, vol.I, (Cairo, 1947).

--------, Kitāb al-Ishārat wa'l-Tanbīhāt, ed. by Forget, (Leyden, 1892).

--------, ʿUyūn al-Ḥikmah, ed. by A. Badawī, (Cairo, 1954).

al-Baghdādī, (Abū'l-Barakāt). Kitāb al-Muʿtabar, ed. by Ş Yaltkaya, 3 vols., (Hyderabad, 1938-1939).

Bailey, C. Greek Atomists and Epicurus, (Oxford, 1928).

Bayhaqī, Tatimmah ṣiwān al-ḥikmah, (Lahore, 1351/1932).

Bréhier, E. The History of Philosophy (The Hellenic Age), tr. by J. Thomas, (Chicago-London, 1963).

Broad, C.D. Scientific Thought, (London, 1923).

Brockelmann, C. Geschichte der Arabischen Literatur, vol.I, (Weimar, 1898).

Callahan, J.F. Four Views of Time in Ancient Philosophy, (Camb.Mass., 1948).

Chroust, A.H. The Meaning of Time in the Ancient World, in the New Scholasticism, vol.XXI, (1947).

Corbin,H. Avicenna and the Visionary Recital, tr.by W.R.Trask, (Tennessee,1960).
--------,Cyclical Time in Mazdaism and Ismailism, in Man and Time, (Papers from the Eranos Yearbooks), ed.by J.Campbell, (London, 1958).
--------, Histoire de la Philosophie Islamique, vol.I, (Paris,1964).
Cornford,F.M. Plato's Cosmology, (London,1937).
Crombie,A.C. Augustine to Galileo, 2vols., (London,1964).
De Boer,T.J. The History of Philosophy in Islam, tr. by E.R.Jones, (New York,1967).
Dieterici, Die Abhadlungen der Ickwān es-Safā, (Leipzig,1886).
Duhem,P. Le System du Monde, 10 vols., (Paris,1913-1959).
-------, Études sur Léonard de Vinci, vol.III, (Paris,1913).
Efros, I. The Problem of Space in Medieval Jewish Philosophy, (New York,1915).
Empiricus,Sextus. Works, 4 vols., (Loeb Classical Library), (London, 1961).
Fackenheim,E. The Possibility of the Universe in al-Fārābī,Ibn Sīnā, and Maimonides, in the Proceedings of the American Academy for Jewish Research, (New York,1947).
Fakhry,M. Islamic Occasionalism, (London,1958).
Ghazālī, Maqāṣid al-Falāsifah, (Cairo,1936).
--------, Tahafut al-Falasifah, ed.by M.Bouyges, (Beirut,1927);tr. into English by S.A.Kamali, Incoherence of the Philosophers, (Lahore, 1963).
Gilson,E. History of Christian Philosophy in the Middle Ages, (London, 1955).
Gomperz,T. The Greek Thinkers, tr.by G.G.Berry, vol.IV, (London,1964).
Hakki,M.I. article in Darülfünun Ilâhiyat Fakültesi Mecmuasi, (Istanbul, 1930).
Ḥanā al-Fākhūrī-Khalīl al-Jarr, Taʾrīkh al-Falsafat al-ʿArabiyyah, 2 vols., (Beirut,1957-1958).
von Horten,M. Die Metaphysik Avicennas, (Halle,1909).
Hujwīrī, The Kashf al-Maḥjūb, tr.by R.A.Nicholson, (Leyden,1911).
Ibn Abī Uṣaybiʿa, ʿUyūn al-anbāʾ fī ṭabaqāt al-aṭibbāʾ, ed.by A.Müller, 2 vols., (Cairo,1882).
Ibn Khallikān, Wafāyāt al-aʿyān, ed.by F.Wüstenfeld, 2 vols.,(Göttingen, 1835-1843);tr.by M.de Slane, vol.III, (Paris,1888).
Ibn Taymiyyah, Minhāj al-Sunnah, vol.I, (Miṣr,1321/1903)

Ikhwān al-Ṣafā, Rasā'il, vol.II, (Beirut,1376/1957).
Inge,W.R. The Philosophy of Plotinus, vol.I, (London,1918).
Jurjānī, Kitāb al-Ta'rīfāt, ed.by G.Flügel, (1845).
al-Kindī, Rasā'il al-Kindī al-Falsafiyyah, ed.by Abū Rīdah, 2 vols., (Cairo,1950-1953).
al-Khuwarizmī, Mafātih al-'ulūm, ed.by van Vloten, (Leyden,1895).
Leclerc,L. Histoire de la Medicine Arabe, vol.II, (Paris,1876).
von Leyden,W. Seventeenth Century Metaphysics, (London,1968).
MacDonald,D.B. Continuous Re-creation and Atomic Time in Muslim Scholastic Theology,in Isis, vol.IX, (1925).
Maimonides, Guide for the Perplexed, tr.by S.Pines, (Chicago,1963).
Marmura,M.E. Some aspects of Avicenna's theory of God's knowledge of Particulars, in the Journal of the American Oriental Society, vol.LXXXII, (1962).
al-Marzūqī, Kitāb al-azminah wa'l-amkinah, 2 vols., (Hyderabad,1332).
Massignon,L. Time in Islamic Thought, in Man and Time, (Papers from the Eranos Yearbooks), ed.by J.Campbell, (London,1958).
Meyerhof,M. The Philosophy of the Physician al-Rāzī, in Islamic Culture, vol.XII, (1945).
Moody,E.A. Galileo and Avempace, in the Journal of the History of Ideas, vol.XII, (1951).
Munk,S. Mélanges de Philosophie Juive et Arabe, (Paris,1927).
Nadwī,Sulaymān. article in K.al-Mu'tabar, vol.III, (Hyderabad,1939).
Nasr,S.H. An Introduction to Islamic Cosmological Doctrines, (Camb.Mass., 1964).
Pines,S. article in Encyclopedy of Islam, (new edition), vol.I, Fasc. 2, (Leyden-London,1954).
--------, Nouvelles Études sur Awhad al-Zamān Abū'l-Barakāt al-Baghdādī, (Paris,1953).
--------, Études sur Awhad al-Zamān Abū'l-Barakāt al-Baghdādī, in Revue des Études Juives, vol.III, no.1-2, (Paris,1938).
--------, Some Problems of Islamic Philosophy, in Islamic Culture, vol. XI, (1937).
--------, Omne quod movetur necesse est abliquo moveri,A refutation of Galen by Alexander of Aphrodisias and the Theory of Motion, in Isis, vol.LII, (1962).
--------, Les précurseurs Musulmans de la théorie de l'impetus, in Archeion, vol.XXI, (1938).
--------, La Conception de la Conscience de Soi chez Avicenne et Abū'l-Barakāt, in Archives d'Histoire Doctrinale et Littéraire de Moyen Age, vol.XXIX, (1954).

Pines,S. Studies in Abū'l-Barakāt's Poetics and Metaphysics, in Scripta Hierosolymitana, vol.VI, (Jerusalem,1960).
--------, A tenth century Philosophical Correspondence, in the Proceedings of the American Academy for Jewish Research, vol.XXV, (1955).
--------, Beiträge zur Islamischen Atomenlehre, (Berlin,1936).
Pistorius,P.V. Plotinus and Neo-Platonism, (Cambridge,1952).
Plotinus, Enneads, tr.by S.MacKenna, (London,1966).
Poznanski, Zeitschrift für Hebraische Bibliographie, (1913).
Proclus, The Elements of Theology, ed.and tr. by E.R.Dodds, (Oxford, 1963).
al-Qiftī, Akhbār al-Ḥukamā', (Cairo,1326).
Rahman,F. Essence and Existence in Avicenna, in Medieval and Renaisance Studies, vol.IV, (1958).
al-Rāzī,(Abū Bakr Zakariyyā). Opera Philosophica, ed.by P.Kraus, vol.I, (Cairo,1939).
Rāzī,(Fakhr al-Dīn), al-Mabāḥith al-Mashriqiyyah, (Hyderabad,1343).
Rayyān,(M. ʿAlī Abī). Naqd Abī'l-Barakāt al-Baghdādī li-falsafat Ibn Sīnā, in the Bulletin of the Faculty of Arts of the University of Alexandria, vols.XXII-XIII, (Alexandria,1958-1959).
Ross,W.D. Aristotle, (London,1966).
Sambursky,S. Physics of the Stoics, (london,1959).
Shahrastānī, Kitāb al-Milal wa'l-Niḥal, ed.by Cureton, (London,1846).
Shahrazūrī, Nuzhat al-arwaḥ, tr. into Persian by Diya' al-Din Durri, " "Kanz al-Ḥikmah", (Teheran,1316).
Smith,G. Avicenna and the Possibles, in New Scholasticism, vol.XVII, (1943).
Solmsen,F. Aristotle's System of the Physical World, (Ithaca-New York, 1960).
Steinschneider,M. Die Arabische Literatur der Juden, (Frankfurt,1902).
--------, Arabic Literature of the Jews, in Jewish Quarterly Review, (second publication), vol.XIII, (New York,1966).
Suhrawardī,Shihābaddīn Yaḥyā. Opera Metaphysica et Mystica, ed.by H. Corbin, vol.I, (Istanbul,1945);vol.II, (Paris-Teheran,1952).
Tawḥīdī, Muqābasāt, (Cairo,1929).
Taylor,A.E. A Commentary on Plato's Timaeus, (Oxford,1928).
The Cambridge History of Later Greek and Early Medieval Philosophy, ed.by A.H.Armstrong, (Cambridge,1967).
The Philosophy of Time, ed.by R.M.Gale, (London,1968).
Ülken,H.Z. La Pensée de l'Islam, (Istanbul,1953).
--------, Islâm Düşüncesi, (Istanbul,1946).
--------, article in the XX International Congress of Philosophy, (1948).

Wali-ur-Rahman,M. The Psychology of Ibn Sīnā, in Islamic Culture, vol.IX,(1935).
Walzer,R. Greek into Arabic, (Oxford,1963).
Weiss,H. An Interpratative Note on a passage in Plotinus' on Eternity and Time, in the Classical Philology, vol.XXXVI, (1941).
Whitehead,A.N. The Concept of Nature, (Cambridge,1920).
Whittaker,T. The Neo-Platonists, (Cambridge,1928).
Wolfson,H.A. Crescas' Critique of Aristotle, (Camb.Mass.,1929).
--------, The Internal Senses in Latin,Arabic,and Hebrew Philosophical texts, in Harvard Theological Review, (April,1935).
--------, Maimonides on Negative Attributes, in Louis Ginzberg Jubilee Volume, English Section, (New York,1945).
--------, Philosophical Implications of the Problem of Divine Attributes in Kalām, in the Journal of the American Oriental Society, vols. LXXIX-LXXX, (1959-1960).
--------, Note on Crescas' Definition of Time, in Jewish Quarterly Review, vol.X, (1919).
Yaltkaya,Ş. Ilâhiyat, (an incomplete translation of the third volume of the Kitāb al-Mu'tabar), (Istanbul,1932).
Yāqūt, The Learned Men's Dictionary, ed.by D.S.Margoliouth, vol.VI, (London,1926).
Zaehner,R.C. Zurvan,A Zoroastrian Dilemma, (Oxford,1955).
Zeller,E. Aristotle and the Earlier Peripatetics, tr.by B.F.C.Castelloe and J.H.Muirhead, (London,1897).
--------, Plato and the Older Academy, (London,1888).
Zobel,M. article in the Encyclopedia Judaica, vol.VIII, (Berlin,1931).