AL-GHAZALI'S VIEWS ON LOGIC

by

'AZMI T. AL-SAYYED AHMAD

Thesis presented for the Degree of Doctor of Philosophy in the Faculty of Arts, University of Edinburgh. February, 1981.
## TABLE OF CONTENTS

Table of contents.
Acknowledgement.
Abstract.
List of abbreviations.
Transliteration.

### INTRODUCTION.

**CHAPTER ONE.**

AN INTRODUCTORY SURVEY OF LOGIC IN THE ISLAMIC WORLD UP TO THE TIME OF AL-GHAZĀLĪ.

1. Introduction. .................................................. 6
2. The introduction of Greek logic into the Islamic World. 7 - 9
3. The period of translation. ..................................... 9 - 13
4. The period of assimilation. ................................... 13 - 17
5. The period of genuine writing. ................................. 17 - 21
6. The period of introducing logic into Islamic sciences. 21 - 24
7. Logic after the time of Al-Ghazālī. .......................... 24 - 25

**CHAPTER TWO.**

AL-GHAZĀLĪ'S ATTITUDE TOWARDS LOGIC.

1. Introduction. .................................................. 27
2. Al-Ghazālī's attitude towards logic in his works:
   a. in Maqāṣid and Tahāfut. 29 - 31
   b. in his books on logic. 31 - 34.
   c. in Iḥyā' and al-Munqidh. 34 - 35
   d. in general. 35 - 37
3. The sources of the ideas of al-Ghazālī's attitude to logic. 37 - 51
4. Discussion and comments. 51 - 59
CHAPTER THREE.

LOGIC AND CERTAIN KNOWLEDGE ACCORDING TO AL-GHAZALI.

(1) Introduction. 61
(2) The concept of certain knowledge. 61 - 69
(3) The method of achieving new certain knowledge. 69 - 70
(4) The premises of syllogism. 71 - 82
(5) The epistemological bases of certainty. 83 - 93
(6) Natural sciences and certainty. 94 - 102
(7) Kalâm and certainty. 102 - 114
(8) Discussion and comments. 114 - 124

CHAPTER FOUR

LOGIC AND QUR'AN ACCORDING TO AL-GHAZALI.

(1) Introduction. 126 - 127
(2) The Qur'ân classifies the kinds of arguments according to the different classes of people. 127 - 132
(3) The Qur'ân contains criteria of knowledge. 132 - 135
(4) The trueness of the criteria of knowledge and the Qur'ân. 135 - 138
(5) The criteria of knowledge in the Qur'ân.
   (I) The great criterion of equivalence. 139 - 147
   (II) The middle criterion of equivalence. 147 - 151
   (III) The small criterion of equivalence. 152 - 156
(IV) The criterion of concomitance. 156 - 160
(V) The criterion of opposition. 160 - 162
(6) The Satanic criteria. 162 - 166
(7) Al-Ghazālī's style in expounding these criteria. 167 - 173
(8) The general method of rational discussions. 173 - 174
(9) The co-operation between logic and the Qur′ān in the fields of knowledge and faith. 175 - 177
(10) General discussion and comments. 177 - 185

CHAPTER FIVE
LOGIC AND JURISPRUDENCE ACCORDING TO AL-GHAZALĪ.
(1) Introduction. 187 - 188
(2) The emergence of uṣūl al-fiqh. 188 - 191
(3) Definition:
   (a) In Aristotelian logic. 191 - 193
   (b) in the Stoic logic. 193 - 195
   (c) in the uṣūl al-fiqh before al-Ghazalī. 195 - 196
   (d) according to al-Ghazalī. 196 - 198
   (e) what al-Ghazalī introduced into the uṣūl al-fiqh regarding definition. 198 - 204
(4) Inference:
   (a) in Aristotelian and Stoic logic. 204 - 207
   (b) in the science of uṣūl al-fiqh before al-Ghazalī. 207 - 212
This thesis has been prepared and written in Edinburgh, and, firstly, I should like to acknowledge the immense debt that I feel I owe to the City and to its people.

But, my principal gratitude must certainly go to my supervisors: to Professor W. Montgomery Watt for his wisdom, scholarship and the special interest he has shown in this work; and, to Dr. I.K. Howard for his wisdom, scholarship, encouragement and the special, and kind, treatment he has shown to me.

I would like to thank the members of staff in the Department of Islamic and Middle Eastern Studies for their kindness, especially Dr. Carol Hillenbrand for reading part of my work and making useful comments.

My sincere thanks are due to Miss I. Crawford, the secretary of the Department, for her kind help, on both personal and official levels.

I have to thank the University of Edinburgh for offering me a Postgraduate Studentship for two years.

I owe a special debt of gratitude to Mrs. M. Batchelor, for her sincere help and conscientious effort in typing this thesis.

I also wish to thank my eldest brother, Abū Ḥabīb, for his encouragement and some financial help.

Finally, I would like to record my warm thanks to my wife, who, in spite of being away from home, has coped with the responsibility of our big family.
ABSTRACT.

Greek logic was transmitted to the Islamic World within the Greek philosophical tradition. Although various Greek books on logic had been translated into Arabic several times, logic remained, up to the time of Al-Ghazālī, suspected as dangerous for religious belief and confined to the circles of the philosophers. It was not able to enter overtly into religious education.

Al-Ghazālī found many schools of thought in his time, each one claiming that truth and certainty were confined to it. He was acquainted with all these different schools of thought. At first, he was not able to determine which was right or wrong. Thus he searched for a criterion by which he could distinguish between certain and non-certain knowledge. After a comprehensive quest, he found that logic was the only criterion of knowledge and its methods of inference are the only methods of research by which one can achieve new certain knowledge. Thus he adopted Aristotle's theory of certainty. Furthermore, he tried to build his concept of certainty and certain knowledge on epistemological bases. After becoming completely convinced of the great importance of logic, al-Ghazālī, in an attempt to restore the system of religious education, worked out a plan aiming to introduce logic into the curricula of religious education. In the first stage, he declared the neutrality of it while at the same time attacking the philosophers. Then he claimed that logic was found in the Qur’ān. After that he wrote books on logic, in which
he was interested mostly in the formal parts of logic, and he endeavoured to clothe logic with an Islamic clothing. All that was not sufficient to make his attempt successful. So he showed the scholars and students in religious education how logic could be used in the Islamic sciences - this was clear in his books on kalām and usūl al-fiqh, where he applied definition and the methods of inference in Aristotelian logic. In doing this, he was the first Muslim scholar to mix, overtly, logic with the Islamic sciences, and to Islamicise Greek logic (Aristotelian).
LIST OF ABBREVIATIONS.

van Ess, Josef, "The Logical Structure of Islamic Theology..." = LSIT

Al-Fārābī, Iḥṣā' al-ʿUlūm. = Iḥṣā'

Al-Ghazālī, Iḥyā' 'Ulūm al-Dīn. = Iḥyā'.

Al-ʾIqtīṣād fī al-ʾIʿtiqād... = al-ʾIqtīṣād.

Al-Qistās al-Mustaṣfām... = al-Qistās.

Maqāṣid al-Falāṣifah = Maqāṣid.

Miḥakk al-ʿAẓm... = Miḥakk.

Miʿyar al-ʾIlm... = Miʿyar.

Al-Munqīdīn min al-ʿDalāl... = Munqīdīn.


Shifa' al-Ghalīl... = Shifa'.

Tahāfut al-Falāṣifah... = Tahāfut.

Kraus, Paul "Zu ibn al-Muqaffa'"... = ZIM.

Marmura, Michael E. "Ghazālī and Demonstrative Science"... = GDS.

"Ghazālī's Attitude to the Secular Sciences and Logic". = GASSL.

Meyerhof, Max "Von Alexandrien nach Bagdad"... = VANB.

Rescher, Nicholas The Development of Arabic Logic... = DAL.

Ibn Sīnā, Al-Ishārāt wa al-Tanbīḥāt... = Ishārāt.

I have followed the system adopted by the Department of Islamic and Middle Eastern Studies, University of Edinburgh.
INTRODUCTION

This work can be described as a study of the first successful attempt in the Islamic world to Islamicise Greek logic. It was performed by a prominent Islamic jurist, theologian and mystic, Abū Ḥāmid Muḥammad ibn Muḥammad al-Tūsī al-Ghazālī (1) (b.450/1058, d.505/1111).

Al-Ghazālī was a student of al-Juwaynī (419-478AH) who earned the title of Imam al-Ḥaramayn (the Imam of the two sacred mosques in Mecca and Medina). After the latter's death, al-Ghazālī was invited to go to the court of the Seljuq vizier, Niẓām al-Mulk who was so impressed by his scholarship that (in 484/1091) he appointed him chief professor in the Niẓāmiyyah college in Baghdad.

While teaching he mastered philosophy and logic. After about three years of study, he was able to write his well-known work, Taḥāfut al-Falāsifah, in which he criticized the philosophers and defended Islam against Muslim philosophers, who sought to demonstrate certain speculative views in contrast with accepted Islamic teaching. (2)

(1) Many works in Western languages dealt with al-Ghazālī's life, and it does not seem necessary to deal with this point here. One can refer, for example, to the following works: W.M.Watt, Muslim Intellectual: a Study of al-Ghazālī, Edinburgh, 1953 (reprinted 1971); M. Smith, Al-Ghazālī, the Mystic, London, 1944. The main source in Arabic is: Tāj al-Dīn al-Subkī, Tabaqāt al-Shafi′iyyah al-Kubrā (5 vols) Cairo, 1324 AH. One can also refer in Arabic to: A. al-ʻUthmān, Sīrat al-Ghazālī, Damascus (no date).

(2) Encyclopaedia Britannica, Ghazālī, al. (by W.M. Watt) p.146.
Then an important event in his life occurred, he passed through a period of scepticism. This was a spiritual crisis "that rendered him physically incapable of lecturing for a time". (1)

When he recovered from this crisis (2) "he began a quest for truth". (3) He found two ways to achieve truth and certainty. One of them is the way of real sufis. He devoted his greatest work Iḥyā' 'ulūm al-dīn (the Revival of the Religious sciences) to expounding this way. (4) The other way is that which comes through logic and its ways of reasoning and he wrote five works to expound this method. (5) There is no significant contribution to the development of logic in these books but their importance lies in the fact that through them Greek logic was Islamicised.

Logic was considered until the time of al-Ghazālī as a part of philosophy (i.e. Greek philosophy). Islam "wrestled with Greek philosophy", including logic, for a long time although it (philosophy) was introduced into the Islamic world mainly in an official way (i.e. through orders and sponsorship of officials).

(1) Ibid., p. 145
(2) This crisis lasts about two months, and at its end he was healed - as he describes it - "by a light which God cast into his breast and not through proof or argument". W.M. Watt, Muslim Intellectual, p. 50.
(3) Ibid., p. 56
(4) Over 400 works are ascribed to al-Ghazālī, some of them are falsely ascribed to him, but at least 50 genuine works are extant. See: W.M. Watt, "The Authenticity of the Works Attributed to al-Ghazālī", Journal of the Royal Asiatic Society, pp. 24-45 (1952); A. Badawi, Mu'allafāt al-Ghazālī, Cairo, 1961.
(5) See below, p. 28.
During this long period of intellectual struggle, some elements of philosophy infiltrated into the Islamic sciences especially *kalam* (theology), but at the same time a hostile and suspicious public attitude towards logic was formed. As a result logic remained for almost four centuries in the Islamic world, as a foreign discipline isolated to limited circles of scholars.

Then came al-Ghazālī who, with intelligence, skill and great effort, was able to free logic from this isolation and make it a respectable subject for Muslims. Thus it was no longer regarded as foreign to Islamic society and it came to be used in disciplines in which previously it would have been denounced.

"Islam is now wrestling with Western thought (and culture) as it once wrestled with Greek philosophy (and logic)." (1) W.M. Watt thinks that "deep study of al-Ghazālī may suggest to Muslims steps to be taken if they are to deal successfully with the contemporary situation." (2)

Although the researcher agrees with this view, it is not the aim of this study to suggest steps to be taken to deal with the contemporary situation, but to study as deeply as possible this important experience in the history of Islamic thought, namely: the Islamicisation of a foreign discipline and the first successful attempt to make use of it in the Islamic sciences (i.e. *kalam* and *usūl al-fiqh*) so that it became beneficial to Islam.

(2) *Ibid.*, p. 15
This study - as far as I know - has not been done before, although several scholars have touched on it briefly in their works about al-Ghazālī and put forward views and notices relevant to the subject matter of this study, which have been useful and of great help.
CHAPTER ONE

AN INTRODUCTORY SURVEY OF LOGIC

IN THE ISLAMIC WORLD

UP TO THE TIME OF AL-GHAZĀLĪ.
AN INTRODUCTORY SURVEY OF LOGIC IN THE ISLAMIC WORLD
UP TO THE TIME OF AL-GHAZĀLI.

1. The logic which is meant here is Greek logic which is mainly Aristotelian; it was transmitted to the Islamic World as part of the Greek philosophical tradition.

From the beginning of its translation into Arabic, logic was objectionable to the scholars of religion. This attitude began to change after al-Ghazālī's(1) attempt to give logic a place in the curricula of religious education and to adapt the methods of research in Islamic sciences to its canons.

The terms Arabic or Islamic logic(2) have not been used because it is felt that they do not designate the reality. What we are dealing with here is in fact Greek logic which was transmitted to the Islamic World and Arabicised without the occurrence of any essential changes in it. However, this is not to deny the important contributions made by some logicians(3) in the Islamic world.

In order to show the importance of the role which al-Ghazālī played in the development of logic in the Islamic World, it is necessary to survey, albeit briefly, the history of logic in the Islamic World from the beginning of its transmission and translation until the period of stagnation which followed the time of its great flourishing after al-Ghazālī's introduction of it into the Islamic sciences.

(2) The term "Arabic Logic" is used by several writers on the subject. Nicholas Rescher, for example, used this term in his works: The Development of Arabic Logic and Studies in the history of Arabic Logic, in which he was treating the logic as described above.
(3) Such as al-Farābī, Ibn Sinā, Abu al-Barakāt al-Baghdādī, Ibn Rushd and others.
2. The Introduction of Greek Logic into the Islamic World:

The introduction of Greek philosophy and logic into the Islamic World can be determined by the time the centres of Greek education in the East fell under Islamic rule; the famous centres were the schools of Alexandria, Antioch, Edessa, Naṣībīn, Jundī Sābūr and Harrān. (1)

Greek logic and philosophy were taught in these schools in Greek or Syriac. (2)

The Syriac-speaking Christians of Syria-Iraq had transplanted the Hellenistic learning of Alexandria. (3) The translation of Greek books — among which were the books of logic — into Syriac, started in the fourth century and continued, almost, until the eighth century. (4)

Although the eight books of the Organon were known to the Syriac scholars, who were mainly clergymen, (5) they translated into Syriac only the first three books which are: the Categoriae, the De Interpretatione and the Analytica Priora.

---

(1) For further information about these schools or centres see: DeLacy O'Leary, How Greek science passed to the Arabs, London, 1949; the article of Max Meyerhof, 'Von Alexandrien nach Baghdad', Sitzungsberichte der Preußischen Akademie der Wissenschaften, philosophic — historische Klasse, vol. 23 (1930) and T.J. deBoer, History of Philosophy in Islam (tr. by E.R. Jones) London 1903; reprinted 1933.

(2) T.J. deBoer, The History of Philosophy in Islam, (the Arabic translation by: M.A. Abū Rīḍā) fourth edition Cairo, 1957, pp. 21, 25; (Hereafter HPI/ATr.) and Max Meyerhof, Von Alexandrien nach Baghdad, Sitzungsberichte der Preussischen Akademie der Wissenschaften, Philosophisch — historische Klasse, Vol. 23 (1930) the Arabic translation by A. Badawi, al-Turath al-Yūnānī fī al-Hadārāh al-Islāmiyyah, Cairo, 1946, pp. 53-54. (Hereafter VA


(4) T.J. deBoer, HPI/ATr., p.25; Max Meyerhof, VA

(5) M. Meyerhof, VA

they also translated Porphyry's *Isagoge* which was "put at the head of the logical Organon as an introduction." (1)

These four books were known to them as "the four books of logic." (2)

The *Analytica Posteriors* and the rest of the Organon were "viewed as suspect for theological reasons." (3) Ibn Abī Uṣaibī'ah reported on the authority of al-Fārābī that when Christianity came and Alexandria became "a centre of (philosophical) education" (4) the bishops were summoned to a conference by the King of the Christians to joint consultation about the parts of the Organon to be taught. They decided to allow only the section of the Organon up to the end of Modal Syllogisms to be taught, as they were of the opinion that the rest of the Organon was dangerous to Christianity, while the part which they allowed to be taught could help in supporting it. So, while this particular section was allowed to be taught, the remainder called "the unreadable part" (5), remained hidden and was only studied secretly. The situation remained like this until Islam many years later. (6)

---

The following explanation can be suggested:

It is known that Analytica Posteriora deals mainly with the method of achieving certain knowledge and the kinds of certain premises. In this book as well as the rest of the Organon, there is now place for certainty according to the religious texts. The bishops were aware of the fact that certainty and its conditions according to Aristotle's theory differ from that of the Scriptures, so they took their decision.

3. The Period of Translation.

The Greek tradition, part of which was logic, was mainly translated into Arabic during the early Abbasid period when this activity received official support.

Although "foreign sciences", during the Umayyed period, received no official encouragement, in fact the first translation of Greek material on logic occurred during this period; it was that of 'Abd Allāh ibn al-Muqaffā' (724–757) who translated into Arabic, most probably from the Persian (Pahlavi), an abridgement(2) of "the four books" on logic which are: Porphyry's Isagoge and Aristotle's Categoriae, De Interpretatione and Analytica Priora.

(1) M. Meyerhof in VANB/ATr. p. 62; N. Rescher in DAL and E. Brehier in PMA, p. 39, all mentioned this phenomenon without giving a sufficient explanation.

(2) Fortunately Ibn al-Muqaffa’s translation exists in four manuscripts. It has been published recently in Teheran by Muḥammad Taqī Daneshpazhūh who edited it and another interesting treatise on logic by Ibn Bihriz (ca.800–ca.860) the Bishop of Mausil, in one volume. Paul Kraus in his article: "Zu Ibn al-Muqaffa", Rivista degli Studi Orientali Vol.14(1933) pp. 1-20 (ZIM), tried to prove that this work was done by Muhammad ibn 'Abd Allāh ibn al-Muqaffa' (i.e. the son) and he suggested that it was probable that the translation was made from Greek. P. Kraus made very useful remarks in this article, but because he did not see the manuscripts and depended only on the description of one of them, his conclusions seem to be mistaken (according to the other manuscripts). See: Ibn al-Muqaffa', al-Mantiq; Ibn Bihriz, Hudūd al-Mantiq, edited by: Muhammad T. Danespazhūh, Teheran 1978, pp. 74-76 (the introduction) and p.93.
The Arabic translations of the books of the Organon after Ibn al-Muqaffa's translation, began to come to light; Timotheus (728–823), a Nestorian Katholicoς, and Abu Nūḥ, translated the Topica into Arabic from Syriac at the time of al-Mahdī or al-Rashīd. (1) Timotheus mentioned that some people, before him, had translated this book into Arabic, but, according to him, their translations were bad and were not worth reading. (2)

The Arabic sources mention, among the earlier translators Yahyā ibn al-Bīṭrīq (ca.770–ca.830) who translated Analytica Priora into Arabic from Greek (3), Ayyūb ibn al-Qāsim al-Raqqī (ca.780–ca.840), who translated into Arabic from Syriac the Isagoge; (4) ‘Abd al-Masīh ibn ‘Abd Allāh ibn Na‘īmah al-Ṣimṣī (ca.780–ca.840) who "made Syriac and Arabic translations of De Sophisticis Elenchis", and Theodore (Tadhārī) (ca.790–ca.850) who translated – very likely from Greek – Analytica Priora. (5)

The most famous translator was Ḥunain ibn Ishāq (809–877) who deserves the lion's share of the credit for the translation of Greek logic into Arabic. (6) Ḥunain not only translated many books (about fifteen) of Greek logic, but he was a supervisor of the prodigious activity of translation in Bait al-Ḥikmah and he used to revise and correct others' translations. (8)

---

(1) Paul Kraus, the Arabic translation of ZIM in: A. Badawi, Al-Turath al-‘Unani (hereafter ZIM/ATr.) pp.115–116.
(2) Ibid., p. 116.
(3) N. Rescher, DAL, p.95.
(5) N. Rescher. DAL, p.96.
(6) Ibid., p.96; Abd al-Rahmān Badawi, Manṭiq Aристū, vol.1, Cairo, 1948, pp. 17–18.
(7) N. Rescher, DAL, p.105.
(8) Ibid., p. 103.
Some of his translations were made directly from Greek; others were made first into Syriac and he, or some of his associates, translated the Syriac into Arabic. (1)

Hunain's son, Ishāq (ca.845-910/911) succeeded his father and continued his labours "to make Greek learning accessible in Arabic"(2). So, the father and the son, made available, in Arabic, not only the books of the Organon, but also the Greek commentaries on them and the logical works of Galen. (3)

Some observations may be made about this period:

(a) Although the translation of logic and philosophy received official support, logic was not able to find a place alongside the Islamic sciences, in religious education and it was still suspected as dangerous for religious belief. It has been suggested that this was because the earlier scholars of religion - like al-Shafiʿī and Ahmad ibn Ḥanbal - had viewed it as such and had asked people not to deal with it. (4)

(b) All the translators - with the exception of Ibn al-Muqaffa' who was an adherent of Mazdaism before he became a Muslim a few years before his death(5) - were Christians. This may be easily explained; the Greek books on logic were in their possession and taught in their schools, and they were the only people who knew Arabic, Syriac and Greek.

(1) See the table of Hunain's logical translations in Rescher's DAL, p.104.
(2) Ibid., p. 113.
(3) See the table of Ishāq's logical translations in Rescher's DAL p.112.
(c) Despite the fact that the translators were Christians and while Christianity had been the dominant religion, only four books of the Organon had been translated into Syriac, they translated into Arabic, not only all the books of the Organon, but, almost, all the Greek books on logic. This may have been due to several reasons among which was the fact that the translations were carried out at the request of official patrons who were sometimes caliphs and so the translators could no longer be held responsible. Thus it was the Caliph and not the translators who would be blamed if any of the content was regarded as unsatisfactory by the religious scholars. This is what actually happened for it was the caliph al-Ma'mūn who was blamed by adversaries of logic.

It is likely that the Christian translators found it an opportunity to satisfy their scientific curiosity by translating the books on logic which they had not previously been allowed to read.

(1) See above, pp. 7-8.
(2) Timotheus, the Nestorian Katholicos, translated the Topica at the request of the caliph (al-Mahdī or al-Rashīd), Habīb ibn Bihrīz, Bishop of Māsīl, wrote a treatise on logic "to show the limits of logic" at the request of the caliph al-Ma'mūn. Bait al-Hikmah was an official institution.
(3) Jalāl al-Dīn al-Siyūṭī-in: Ṣawān al-Mantiq wa al-Kalām 'an Fann al-Mantiq wa al-Kalām, edited by Aḥ S. al-Nashshār, Cairo, 1947, p.9. (hereafter on Ṣawān) — reported that Ibn Taimiyyah said: "I do not think God is heedless of Al-Ma'mūn, it is inevitable that He (i.e. God) will punish him for what he had intentionally done with this nation (ummah) by introducing these philosophical sciences to its (i.e. ummah's) people."
(4) It is likely that the desire to have a good Syriac translation of the Greek logical and philosophical books was one of the reasons that a lot of translations (during Islamic times) were made first into Syriac then into Arabic, as we see in the works of Hunain who, in spite of mastering Greek, Syriac and Arabic, made a lot of his translations in this way.
(d) These translations "received their initial impetus in the wake of medical studies" (1) because the books of medicine were the first to be translated into Arabic, and "logic was a central subject of the preparatory programme" (2) which physicians had to learn according to the Syriac tradition of medical learning which was "continuous with that of 5th-6th century Alexandria". (3)

4. The Period of Assimilation.

It was a natural development, to see the first generation of Arabic-speaking logicians emerging at the end of the period of translation, and to find that their main activity was to epitomize, comment or write explanatory remarks on the main books of logic, i.e. the books of the Organon; this was to make logic more easily understood by the students of logic and philosophy.

Among the first to write in this manner was Ḥabīb ibn Bīhrīz (ca.800-ca.860), the Bishop of Mauṣil, who wrote at the request of the caliph al-Ma’mūn, an epitome of Categoriae and De Interpretatione. (4) An outstanding representative of these early scholars of logic is Abū Yusuf Ya’qūb ibn Ishāq al-Kindī (ca.805-ca.873) who wrote commentaries or epitomes upon all parts of the Organon. (5)

(1) N. Rescher, DAL, p.28.
(2) Ibid., p.17.
(3) Ibid., p.17
(4) Ibid., p.100. The work of Ibn Bīhrīz has survived and has been published recently, in Teheran (see above p.5 N.1). In this work, the Categoriae and De Interpretatione were not systematically epitomised, but their general ideas were given in a simplified way.
He also wrote commentaries on Alexander on Rhetorica and Poetica and a brief outline of Apodictics/Analytica Priora entitled "Short treatise on logical proof." (1)

The writing of introductions to logic began to appear in this period. Qusta ibn Luqa al-Balabak (ca820-912) wrote a treatise entitled: Kitab al-madkhal ila al-Mantiq (2) (Introduction to logic).

Thabit ibn Qurrah (834-901) is credited by the Arabic bibliographers with the writing of epitomes of most of the books of the Organon. (3)

Al-Kindi's student, Ahmad ibn Muhammad ibn al-Tayyib al-Sarkhasi (ca.840-899), "epitomised all 'the four books' of logic and De Sophisticis Elenchics" (4) and Analytica Posteriora.

Abu Ishaq Ibrahim Quwairi (ca.855-ca.915) "is reported to have written extensive Arabic commentaries on much of the Organon." (5)

The well known physician Abu Bakr Muhammad ibn Zakariyya al-Razi (865-ca.925), known to the medieval west as Rhazes, wrote epitomes of the Isagoge and the first four books of the Organon. It is reported that he also wrote Qasidah fi al-Mantiq. (6) (Ode on logic).

Abu Bishr Matta ibn Yunus (ca.870-ca.940), who was renowned as "the best logician of his day", gave "a new and powerful impetus to logical studies in the Arabic-language setting". (7)

(3) N. Rescher. DAL, p. 108.
(4) Ibid., p.109.
(6) N. Rescher, DAL, pp.117-118.
(8) N. Rescher, DAL, p.121.
Matta was a translator and a logician; in addition to the translation of several books on logic into Arabic, he wrote commentaries on the first five books of the Organon.\(^1\)

Two prominent personalities in the history of logic in the Islamic world can be added to the logicians of this period. They are, al-Fārābī and Yahyā ibn 'Adī. Al-Fārābī (873-950) wrote commentaries on all the books of the Organon, an introduction to logic and several treatises discussing particular points of logic.\(^2\)

Al-Fārābī was superior to all other logicians in spreading logic and making it available to the Arabic-speaking people. His works "drove the commentaries and treatises of earlier writers from the field and served as grist to the mill of later logicians".\(^3\)

Yahyā ibn 'Adī (893-974) who was a translator, a commentator and a writer of several logical works, continued the efforts of his master al-Fārābī in spreading logic in the Arabic speaking world.\(^4\)

Some points can be noticed in this period:

(a) Almost all the logical activities of this period were centred in "one single school of logicians"\(^5\) at Baghdad. This school was not an educational institute with a special place and a fixed system, but it was only a school in the sense that we are able to trace in it the linkage master→student.\(^6\)

---

\(^1\) See the list of Matta' works on logic in DAL, p.120
\(^2\) See the list of al-Fārābī's works on logic in DAL, 122-126, and his works in general in: N. Rescher, Al-Fārābī: An Annotated Bibliography, Pittsburgh, 1962.
\(^3\) N. Rescher, DAL, p.128.
\(^4\) Ibid., pp.133-134
\(^5\) Ibid., p.33.
\(^6\) See the table which illustrates the relation:master→student, in the "School of Baghdad" and those who were designated as "Heads of the School" in: N. Rescher, DAL, p.35. The title "Head of School" is purely honorific and does not connote an office. Cf. A.S. Tritton, Materials on Muslim Education in the Middle Ages, London, 1957, p.116. Those masters used to teach at their houses or at the booksellers' shops (al-warraqin).
(b) While the translators of logic were mostly Christians some of the logicians of this period were Muslims.

(c) The opposition between Greek logic and Arabic grammar appeared in this period. Ahmad ibn Muhammed al-Sarkhasi wrote a treatise on "the difference between Arabic grammar and logic" but this opposition was embodied in the celebrated debate which took place in Baghdad on the respective merits of Arabic grammar and logic, in the salon of the vizier Ibn al-Furat. The defender of logic was Abu Bishr Matta ibn Yunus and his opponent was Abu Sa'id al-Sirafi (893-979). This debate was "a major literary event" in Baghdad, in the year 320/932.

Whenever al-Farabi spoke about logic and its usage, he did not forget to compare it with Arabic grammar.

(d) Logic, in this period still did not have a formal place in religious education. Nevertheless, some of the theologians (mutakallimun), especially the Mu'tazilites, tried to study logic secretly for themselves because the orthodox Muslims "tended to regard logic as a black art and a tool of the devil". A number of treatises and parts of books written by theologians were devoted to criticizing logic and its method; among those we know of Abu Muhammed al-Hasan al-Naubakhti (d.300/1011) in his book: Al-Ara' va al-Diyanaat, Abu al-'Abbás al-Nashi (d.293/906) and the two al-Jubba'is, father and son who were Mu'tazilite

---

(1) N. Rescher, DAL, p.109
(3) Al-Farabi, Ihsa' al Ulum, edited by 'Uthmân Amin, second edition, Cairo, 1949, pp.54, 59, 60, 61, 62.
(4) N. Rescher, DAL, p.41.
(5) Ibn Taimiyah in his work: Nasihat ahl al-Imân fi al-Radd 'ala Mantiq al-Ünan, which was epitomised by Jalal al-Din al-Siyuti, quoted a passage from al-Naubakhti's Al-Ara' in which he criticised the first figure of syllogism, see: Jalal al-Din al-Siyuti, Sawm, pp. 325-226.
But, in spite of the different kinds of criticism and the hostile attitude towards it, logic was, during this period, making its way, slowly, towards a place in the circles of theology (kalam), through which it would make its way, at the hands of al-Ghazālī, to the circles of fiqh and religious education.

(e) By the end of this period (around the end of the 10th century), Greek logic was Arabicised and the works of the logicians of this period superseded the basic Aristotelian texts for the study of logic. (1)

5. The Period of genuine writing.

It was a natural development to wait some time (i.e. the period of assimilation), after the translation of Greek logic, before the emergence of any genuine writings in Arabic, on logic, which emanated from complete and deep understanding of the discipline.

The beginnings of this period are found in the writings of al-Farābī, who was, in addition to being an excellent commentator on Greek logic, an original thinker in logic, and "many of his significant logical contributions are only beginning to come to light". (2)

The best representative of this period was, unquestionably, Ibn Sīnā (Avicenna) (980–1032) who, with a genuine logical talent, dominated his century (3) (i.e. 11th century) and the course of logic in the Islamic world after that, "in influence as well as skill". (4)

---

(1) N. Rescher, DAL, p.47.
(2) Ibid., p. 128.
(3) N. Rescher in DAL called the 11th century as the "century of Avicenna".
(4) Ibid., p.50.
Ibn Sīnā compiled extensive books on logic after the pattern of Aristotle's Organon; these books are a part of his philosophical encyclopaedia: Kitāb al-Shifa' (Book of healing). In addition, Ibn Sīnā wrote some other books, in which he devoted parts to logic, like: al-Ishārāt wa al-Tanbīhāt, Al-Najāt, 'Uyūn al-Hikmah and Dānish Nāmeh (the latter in Persian). He also wrote special treatises on logic. (1)

To give a brief idea of Ibn Sīnā's place in the development of logic in the Islamic world it is sufficient to quote the following: (from N. Rescher)

"In logic, Avicenna was above all a systematizer. Just this is the source of his originality. In the interests of a full and comprehensive treatment he did not hesitate to fill gaps left in the discussions of the predecessors or to make corrections in their work. Avicenna was no mere compiler or explicative commentator, but a powerfully original mind. Although faithful to his logical sources, Avicenna's interest was not in commentary but in systematization. He did not cavil at innovation when the adequate treatment of a problem seemed to call for a new approach." (2)

N. Rescher mentioned some of Ibn Sīnā's main contributions to logic (3) but one of his important achievements - to which it seems none of the scholars who have treated this matter, have given attention - is his attempt to make a place for the religious texts in Aristotle's theory of certainty and certain knowledge, the theory which was viewed by pre-Islamic Christians as dangerous to Religion. (4)

---

(1) See the list of Avicenna's works on logic in: N. Rescher DAL, pp. 149-151.
(2) Ibid., P. 154.
(3) See them in: Ibid., p. 154.
(4) See above, p. 8.
Ibn Sīnā did this by modifying Aristotle's classification of certain premises (1) from which, according to Aristotle's theory, we deduce, by using them in valid syllogisms, a new certain knowledge. This modification, which does not affect the essence of Aristotle's theory, was the addition of a new kind of premises to the undemonstrable premises i.e. certain premises (from which we reach – through syllogistic demonstration – new certain knowledge). The new premises were those known from innumerable narrators (al-mutawātirāt). (2) The Qurʾān, according to Muslims, comes under this kind.

With this modification, Ibn Sīnā made room for Islamic religious texts in Aristotle's theory of certainty. This should be regarded as a skillful attempt by Ibn Sīnā to reconcile religion (i.e. Islam) and Greek logic.

Muslim logicians, after Ibn Sīnā are to be found mentioning the propositions known from innumerable narrators (al-mutawātirāt) as a kind of certain premise.

Another great philosopher and logician should be mentioned in this period; Ibn Rushd (Averroes) (1126-1198) who exerted great influence upon the Latin speaking West. (3) Ibn Rushd made extensive commentaries "upon the entire logical Organon (including Isagoge)" (4) in the usual triplicate manner of Arabic commentators (i.e. short commentary, a more elaborate commentary and an extensive commentary); he also "wrote a number of other works dealing in part or whole with logical matters. (5)

(3) N. Rescher, DAL, p. 176.
(4) Ibid., p. 177.
(5) Ibid., p. 177.
Ibn Rushd's main contribution to logic was in getting back "to the conceptions of the Master (i.e. Aristotle) himself." (1)

In his commentaries, Ibn Rushd made use of the efforts of previous Muslim logicians such as al-Fārābī and Ibn Sīnā and the commentaries of the Greeks and Arabs on the Organon, and so the quality of his work was outstanding in re-systematising the logical doctrine and resolving "points under dispute between the principal expositors of Aristotelian logic, both ancient and modern." (2)

A few points can be made about this period:

(a) The logical works of Ibn Sīnā were the first and, far and away the best, products produced along an independent line. Logicians, after Ibn Sīnā, did not return to the Aristotelian treatises in order to master logic or "to find a proper subject for commentary" (3) but rather to Ibn Sīnā's works.

(b) With the exception of Ibn Rushd's works, we find that most of the works on logic in this period "were no longer commentaries on Aristotle, but handbooks, more or less independent treatises" (4) covering all the topics in logic.

(c) During this period, logic remained unable to enter the circles of religious learning overtly, although some of the scholar-jurists and theologians continued to study logic secretly for themselves, and so a new breeze was in the air.

(1) Ibid., p. 179
(2) Ibid., p. 58.
(3) Ibid., p. 52
(4) Ibid., p. 52
(5) Some of the Mu'tazilite and Ash'arite theologians used to study logic; it is reported that Abu 'Alī ibn al-Walid (ca.1010-ca.1070) a Mu'tazilite scholar was the finest logician to be found in the Baghdad of his day. See: Al-Qīfṭī, Tārīkh al-Ḥukamā', edited by Lippert, pp.365-366.
During this period of activity came a man who was to begin a new period in the development of logic. He was a great scholar-jurist and theologian. He announced that logic should be taught to the students of religious studies and that its canons should be applied to and mixed with those of Usūl al-fiqh. This great scholar was al-Ghazālī whose attitude to logic can be described as revolutionary — as will be shown. (1)

6. The Period of introducing logic into the Islamic sciences:

Although there was some official support to those who were dealing with "the foreign sciences", philosophy and logic was not able to enter, overtly, the circles of Islamic sciences, which were mostly taught in mosques. Even in the Niẓāmī colleges, in the beginning (2), logic was not in their curricula and so the study of these sciences remained confined to limited circles with a limited number of students, in comparison with those studying Islamic sciences, but this limited number was able, with great efficiency, to continue teaching and publishing works on philosophy and logic on which there were, in general no restrictions.

We have already mentioned that some of the theologians and the scholar-jurists tried secretly to study logic. (3) This was because there was a strong feeling that logic and logicians were dangerous for religion. Thus, before al-Ghazālī, no one took the risk of trying to introduce logic overtly into Islamic learning. (4).

---

(1) The second chapter is devoted to the exposition of al-Ghazālī's attitude to logic.
(3) See above, p. 10.
(4) In fact, Al-Juwaynī, al-Ghazālī's teacher tried to mix logic with theology but in an indirect manner as one can notice in his al-Irshād.
An attempt, far away in Spain, was made by a notable theologian and scholar-jurist, Abū Muḥammad 'Ali ibn Ḥazm (994–1064), who "argued forthrightly in defense of logic"(1) in his work: Al-Taqrīb li Ḥadd al-Mantiq(2) (The Approach to the limit of logic), in which he used juridical examples trying to show that logic is neither dangerous for religion nor contradicts it. The fact that there were very few followers of his sect Dhāhiṣrīsm had the result that his attempt never acquired more than limited local influence.(3)

The successful attempt - to introduce logic into Islamic sciences - was that of al-Ghazālī. Although one can consider al-Ghazālī as a logician without hesitation, because he wrote several works on logic, and because of his attitude to it, "his writings on logic involve no innovations"(4), but his place, historically, in the development of logic in the Islamic world was of great importance.

Al-Ghazālī's attempt marks the beginning of a new epoch in which scholars in Islamic sciences began to mix overtly their sciences with logic. Some important results are attributed to al-Ghazālī's attempt:

(a) The hostile attitude of the scholar-jurists to logic began to change; "they decided that logic is not in contradiction with articles of faith, even though it is in contradiction with some of the arguments for them". (5)

---

(1) N. Rescher, DAL, p. 159.
(4) Ibid., p. 167.
(b) "More interesting books on logic came to be written by theologians and not philosophers"(1) and it became a fashion to find a great part of the introductions in the handbooks of logic, devoted to a discussion on whether dealing with logic is permissible or not; and "theological treatises came to have introductory sections on logic."(2)

(c) Logic increasingly came to be accepted as an essential instrument for religious subjects, i.e. theology and usūl al-fiqh, until it became one of the main subjects in the curricula of the religious schools.

(d) The custody of logic fell gradually into the hands of the scholars of religion and resulted, at last, (i.e. in the 13th century) in "the disengagement of logic from philosophy"(3) a phenomenon which was of the profoundest importance for "the survival of logic in the orbit of Islam". (4) The philosophers' view, from the time of al-Fārābī had insisted that logic was an instrument of intellectual inquiry(5) and a pedagogical propaedeutic to all reasoned disciplines, was of great importance in developing this phenomenon, as well as the Muslim acceptance of logic. (6)

(e) A flourishing period of logic, in the Islamic world, was on its way.

---

(1) W. M. Watt, Muslim Intellectual, Edinburgh, 1963, p. 173
(2) Ibid., p. 173.
(3) N. Rescher, DAL, p. 51.
(4) Ibid., p. 61.
(5) For more details about the attitude of the famous logician in Islam concerning this point, see below pp. 41-43.
Another notable scholar-jurist and theologian, Fakhr al-Dīn al-Rāzī (1149-1209) followed al-Ghazālī's line, concerning the introduction of logic into the Islamic sciences and strengthened it; "he affords an early instance of the increasing impact of logic upon Islamic theology."(1)

Because al-Ghazālī and al-Rāzī were prominent scholars in the religious sciences, they were taken as competent authorities concerning the legality of dealing with logic, and "scholars (of religion) have been somewhat more lenient in this respect".(2)

After al-Ghazālī's success in introducing logic into the Islamic sciences, there followed what can be regarded as the golden age of logic in the Islamic world.

There was unparalleled activity in the field of logic and also it was introduced further into religious sciences especially usūl al-fiqh.(4) However, logic also found its most violent opponents in Ibn al-Ṣalāḥ al-Shahrazūrī (d.643/1245) and Ibn Taiymiyah (1263-1328).(5) Nevertheless, logic succeeded in becoming one of the subjects taught in the madrasa.(6)

---

(1) N. Rescher, DAL p. 184.
(3) N. Rescher, DAL, p. 64.
(4) This is clear in the well-known work of al-Āmidī (1156-1233) al-Ihkām fī Usūl al-Āhkām, 3 vols., Cairo, 1913.
(5) See below, pp.
(6) N. Rescher, DAL, p. 71; Tritton, Materials on Muslim Education in the Middle Ages, pp. 134-135.
However, the main concern of Islamic sciences after al-Ghazālī was mainly the formal parts of the Organon.\(^{(1)}\)

This tendency was initiated by al-Ghazālī. It reflects a similar though less severe attitude to that of the early Christians.

Nevertheless, the study of logic surpassed the study of all branches of philosophy.\(^{(2)}\)


\(^{(2)}\) 'Adil Fakhurī, *Mantiq al-'Arab*, p.33. This result can be extracted from N. Rescher's register of Arabic Logicians' in DAL (Part II), pp.93 - 255.
CHAPTER TWO
AL-GHAZĀLI'S ATTITUDE TOWARDS LOGIC.
Al-Ghazālī's Attitude towards Logic.

1. Introduction:

One of the difficulties\(^{(1)}\) of research into al-Ghazālī's views on any subject is that frequently he has expressed more than one. This is due to several reasons\(^{(2)}\) among which are the growth and development of his outlook, and the fact that he was speaking several languages, i.e. as a scholar-jurist, theologian, philosopher, logician and sufī. In view of this, it is striking to find that al-Ghazālī's attitude towards logic is invariable and the changes in his outlook, which occurred during the course of his life, only added greater clarity and firmness to this.

In the following exposition, an attempt will be made to give an outline of the attitude towards logic as expressed in his works, and then to examine the sources of the main ideas of his attitude. After that his attitude will be looked at within the context of the time in which he lived.

2. Al-Ghazālī's attitude towards logic in his works:

It is possible to classify Al-Ghazālī's works, in which there is a declaration of his attitude to logic, into three groups, each of which reflects an important period in the course of his intellectual life. These groups which reflect a chronological record of the development of his thought, are:

---


\(^{(2)}\) See some of these reasons in the above mentioned works of: W.M.Watt, p.VII; F. Rahmān, pp.94–95 and H.M.al-Alūsi, pp. 78–81.
(a) Maqāṣid al-Falāsifah and Taḥāfut al-Falāsifah (The Aims of the Philosophers and The Inconsistency of the Philosophers); these books can be considered as representing the period of attacking the philosophers (which some writers, wrongly, consider as an attack on philosophy). (1) It is important, for the purpose of this chapter, to know his attitude towards logic in this period, for logic was considered as the main tool in philosophy which only philosophers were able to understand and use.

(b) His books on logic: they can be considered as representing the period in which his attitude towards logic became deep-rooted, because he does not refer to outside authorities in his treatment of the logical material and claims some developments as his own. Thus it is important to know his attitude in this period. These books are: Mi'yar al-ʿilm (The criterion of knowledge), written in (488/1099); Miḥakk al-Nazar fī l-Mantiq (The Touchstone of Thinking in Logic), written in (488/1099); Al-qistās al-Mustaqīm (The Just Balance), written in (497/1103); and the introduction of Al-Mustaṣfā fī Uṣūl al-Fiqh 'The Best in the Principles of Jurisprudence) written in (503/1109). (2) It is not without subtle meaning that Al-Ghazālī entitled his book 'the inconsistency of the philosophers' and not 'the inconsistency of philosophy'; this indicates that he was not, mainly, aiming to attack philosophy itself. In fact Al-Ghazali's work Maqāṣid helped in making philosophy more widely known than it was before.

(c) Ḥayā' Ulūm al-Dīn (The revival of the Religious Sciences) and Al-Mungidh min al-Ẓalāl (Deliverance from Error): those are the most popular of his exoteric works, if not all his works. Thus, the attitude towards logic, which he gives to the public in these books, reflects the maturity of his thinking and is also of great importance.

In what follows, quotations will be cited from each group, which express his attitude. From these, the main ideas of his attitude towards logic will be deduced.

(a) Al-Ghazālī's attitude towards logic in Maqāsid and Tahafut:

(i) From the introduction(1) of Maqāsid al-Falāṣīfah, we take the following quotation:

"I want to let you know, firstly, that their (i.e. the philosophers) sciences are four parts: mathematics, logic, natural sciences and theology... logic, for the most part, is a true method (ʿalā manhaj al-ṣawāb), incorrectness is rare in it. They (i.e. the philosophers) differ from the people of the truth (ahl al-ḥaqq), concerning it, in terms and the ways of expressing the ideas (al-irādah) but not in the meanings and aims. For its aim is the expurgation of the ways of reasoning, and this is common among speculative thinkers (al-nuẓur)."(2).

(1) It is well known that al-Ghazālī's Maqāsid is a summary of the philosophers' sciences and it does not represent his own views; we can exclude the introduction, from which this quotation, above, is taken, for it represents his own viewpoint.

(2) Maqāsid, p. 32.
(ii) From *Tahafut al-Falasifa* we quote the following:

"As regards their (the philosophers) contention that mastery of logic is necessary, it is true. However, logic is not their monopoly. Rather, it is the foundation which we name in theology (Kalam), the section of theoretical enquiry, (Fann al-Kalam). The philosophers have changed its name to Logic to make it look formidable, while we sometimes call it the section of disputation (Kitāb al-Jadal) or the perceptions of intellects (Madārik al'uqul). When a gullible enthusiast hears the word 'Logic' he thinks that it is a new subject unknown to the theologians (Mutakallimūn) and cultivated by the philosophers alone...". (1)

"As regards Logic, it is just an investigation into the instruments of reflection over rational matters (ma'qulāt). As such, it involves no contradictions which might deserve our consideration...". (3)

From the above quotations of al-Ghazālī, we find the following ideas:

(1) Logic, in itself, is a science, (for it is one of the philosopher's sciences) and a study (nazar).

(2) Logic is an accurate science.

(3) Logic is a part of philosophy.

(4) Logic is an instrument of thinking, especially in rational sciences (ma'qulāt).

(5) The aim of logic is knowing the exact ways of reasoning.

---


(2) In the English translation it is 'intelligibles' for the arabic (ma'qulāt), for which I preferred to use 'rational matters'.

(3) *Tahafut*, the English translation, p.12; the Arabic in Dunya's edition, p.73.
(6) Logic is not confined to philosophers, (theologians, al-mutakallimūn, also know and use it but under other names).

(b) Al-Ghazālī's attitude towards logic in his books on logic:

(i) From the introduction of Mi'yar al'ilm, we cite the following quotations. However, it should be borne in mind that al-Ghazālī, in writing Mi'yar was following the philosophers' way in their expositions of logic, especially the first book of Ibn Sīnā's Ishārāt. (1) "...we composed this book (i.e. Mi'yar al'ilm) to be a standard of study and consideration and a balance of research and reflection...so, it will be to mental evidence like metre is to poetry and grammar and there cannot be any distinction between unsound and sound, and between true and false evidences, except with this book (i.e. Mi'yar). Every thinking which is not balanced with this balance and not gauged with this standard, you should know is badly measured and its conclusions and its bases are not trustworthy... its (i.e. Mi'yar's) advantage includes all the theoretical sciences: philosophical ('aqliyyah) and juridical (fiqhiyyah); for we shall let you know that reasoning in juridical matters is not difference from that in rational matters, in its order, conditions and standards, but only in the approaches of the premises." (2) "You should know that its (i.e. Mi'yar's) purport is teaching the condition of the transition from the images set in the mind to things which are unknown to you...." (3)

(2) Mi'yar, pp. 59-60.
(3) Ibid., p.67.
"The purport of this book is to know the principles of the explanatory statements of what is wanted to be conceived... and the principles of demonstration which leads to assent..."(1)

(ii) From Miḥakk an-Nazar we quote the following:

"...in it (i.e. Miḥakk) there is a record of the touchstone of study and thinking, to keep you away from the hidden sources of faults...", (2) "you should know that if you know the conditions of valid syllogism and perfect definition and the causes of error in them, you will succeed in holding together the two things, for they are the bond of all sciences...". (3)

(iii) From the introduction of al-Mustaṣfā fī Usūl al-Fiqh, we quote the following:

"We will talk in this introduction about the perceptions of intellects (mudrakāt al-‘uğul) and that they are limited to definition and demonstration... in a briefer way than we did in the books: Miḥakk an-Nazar and Mi'yār al-'ilm. This introduction does not belong to the science of the principles (of islamic jurisprudence) ('ilm al-üşūl) nor to (the type of) introductions to it; but it is the introduction to all the sciences, and there will be by no means any confidence in the knowledge of one who does not master it, and the need of all the theoretical sciences for this introduction is as much as that (of the science) of the principles of Islamic jurisprudence."(4)

(1) Ibid., p.68.(for a discussion of the translation of tasdīq as "assent", see footnote no. 1, p. 48.
(2) Mihakk, p. 2.
(3) Ibid., p.4.
(4) Al-Mustaṣfā, p. 10.
(iv) Before giving quotations from *al-Qisṭās al-Mustaqīm*, it should be noted that al-Ghazalī has a special outlook to logic in this work, to which a whole chapter has been devoted. Thus, here we will only cite short quotations which reflect his attitude in general: "... I (i.e. al-Ghazalī) did not claim that I used this criterion to balance religious knowledge alone. I also balance with it arithmetic, geometry, medical science, jurisprudence, theology, Kalam and every science which is true. I can, with these criteria, distinguish in it the true from the false".

"If the Qur'ān did not contain the criteria (of knowledge) it would not be right to call the Qur'ān "light", for "light" is what can see by itself and by which other things can be seen; and this (light) is an epithet of the criterion (of knowledge) . . . ; all the sciences are not explicitly contained in the Qur'ān, but are potentially present within it by virtue of the just balances (i.e. criteria of knowledge) which open the doors of wisdom, which is infinite".

It is appropriate to confirm - before dealing with main ideas in the above quotations - an important point, even though it is not unknown. It is that the logic, with which the above group of books is dealing and about which the above quotations are speaking, is the traditional logic - as used by the Muslim philosophers. This is mainly Aristotelian.

(1) See below, pp. 82.
(2) *Al-Qisṭās*, p. 82.
(3) Ibid., 91; Brewster's translation, p. 92.
Now, we can extract from the quotations of this group here, the following ideas:

1. Logic is an instrument for achieving knowledge in all the sciences, including jurisprudence.

2. Logic is a criterion by which we distinguish between true and false knowledge.

3. He who does not master Logic, among scholars, is not reliable in knowledge.

4. Logic does not contradict Islamic doctrine; for logic is found in the Qur'ān and can prove its (Islamic doctrine's) truth.

5. Logic is a key to the door of infinite wisdom.

(c) Al-Ghazālī's attitude towards logic in Ihyā' and al-Munqidh:

(i) From Ihyā' 'Ulūm al-dīn, we quote the following:

"Philosophy is not a single independent science, but it consists of four parts: the first is arithmetic and geometry..., the second is logic. It (i.e. logic) is a study of the mode of proof and its conditions, and the mode of definition and its conditions; the two pertain to theology ('ilm al-kalām)...." 1

(ii) From al-Munqidh min al-`alāl we cite the following:

"...The philosophical sciences are six in number: mathematics, logic, natural sciences..." 2 "Nothing in logic is relevant to religion by way of denial or affirmation.

---

1 Ihyā', vol. 1, p. 20.

Logic is the study of the methods of demonstration and of forming syllogisms, of the conditions for the premises of proofs, of the manner of combining the premises, of the conditions for sound definition and the manner of ordering it... There is nothing here which requires to be denied. Matters of this kind are actually mentioned by the theologians and speculative thinkers in connection with the topic of demonstration. The philosophers differ from these only in the expressions and technical terms they employ and in their greater elaboration of the explanations and classifications... What connection has this (i.e. an example of syllogism which occurred before this sentence) with the essentials of religion, that it should be denied or rejected?..."(1)

From the above quotations here, we find the following ideas:

(1) Logic is one of the philosophical sciences.
(2) Logic is, mainly, a study of demonstration and definition and their modes and conditions.
(3) Matters of logic are treated by the theologians; their treatment is less elaborate than that of the philosophers and different in expression.
(4) Logic in itself, as far as religion and its essentials are concerned, is neutral.

(d) Al-Ghazālī's general attitude towards logic:

From the ideas, already mentioned, in the three groups of works, we can render al-Ghazālī's general attitude to logic in the following ideas:

(1) Ibid., pp. 35-36.
(1) Logic was known to and practised by Muslim theologians, mutakallimūn, under other names.

(2) Logic in itself is a science—it is a propædetic science for all other sciences (including jurisprudence and wisdom which is infinite)—and it is, at the same time, an instrument of reasoning in all sciences.

(3) Logic is an accurate science; for the disagreements between those who deal with it are rare and they are only about subsidiary and secondary matters.

(4) Logic is a neutral science and instrument "not committed to any philosophical view or doctrine."

(5) Logic is a criterion of knowledge, by which we can distinguish between true and false knowledge.

(6) Logic is, mainly, two parts: the study of definition by which one can achieve exact conceptions, tašawwurāt, and the study of inference or demonstration (hujjah = burhān) by which one can achieve certain assents (taṣdīqāt).

There are two remarks which can be made here:

(a) There is no change in al-Ghazālī's attitude to logic during the course of his intellectual life, (this is clear from what had been declared in the three groups of al-Ghazālī's works.)

---


(2) Mi'yar, pp.68-69, 265; Mustaṣfa, vol.1, p.11 and Miḥakk, p.6.

(3) Al-Mustaṣfa was written two years before al-Ghazālī's death; this indicates that his attitude to logic was the same and it became even more strongly held at the end of his life.
This reflects the high degree of confidence he had in logic.

(b) Al-Ghazālī acknowledged that logic is one of the philosophers' sciences, yet at the same time he declared that logic is a neutral science and is not confined to philosophers, as already mentioned. In this al-Ghazālī was trying to separate logic from philosophy and to deal with it as a separate discipline. Such a treatment looked strange in al-Ghazālī's time for both philosophers and scholar-jurists, and it was, in a sense revolutionary.

However, in order to give a clearer impression of al-Ghazālī's attitude to logic, which has been described as "revolutionary without being entirely new", (2) we should be acquainted with the circumstances of his time. This will be done in a separate section of this chapter (3) after showing the sources of the ideas which make up his general attitude.

3. The sources of the ideas of al-Ghazālī's attitude to logic:

The quest for the sources of al-Ghazālī's attitude to logic - due to the fact that Aristotle was the inventor of logic - should start either from Aristotle or work back towards him. We are going to follow the former way in which we can see better the development of the ideas.

We would like to mention, here, that al-Ghazālī's knowledge of Greek logic was indirect, it was through Arabic translations of Greek books on logic and the works of the Islamic logicians who preceded him.

(1) See below, pp. 57-58.
(2) Josef Van Ess, LSIT, p. 47.
(3) See below, pp. 51-59.
We are going to trace, in what follows, the origin of each idea in al-Ghazālī’s attitude separately, and then derive from that a general judgement.

(a) The sources of the idea: logic was known and practised by Muslim theologians under other names:

That the theologians—in general—knew and practised logic does not reflect exactly the reality. One can mention here some facts which help to indicate the reality:

(i) the theologians had developed a methodology which had some similarities with logic\(^{(1)}\).

(ii) some theologians were acquainted with logic (they studied it by themselves, like al-Ghazālī).

(iii) theological reasoning was affected by reasoning according to Greek logic, but these types of reasoning were not the same\(^{(2)}\) as al-Ghazālī tried to make us believe. In fact, the source of this idea is al-Ghazālī himself, who wanted to convince the students (and the scholars) of religious studies that logic is not alien to the Muslim environment. He even claimed—as mentioned above—that logic is found in the Qur’ān.

(b) The sources of the idea: logic in itself is a science, it is a propaedic science for all other sciences and it is at the same time an instrument of reasoning in all sciences:

There were many long discussions in the course of the history of logic on this problem. That was because of Aristotle’s not having placed logic, his great creation, among the philosophers’ sciences\(^{(3)}\) "but treating of it, in his expositions, as propaedics"\(^{(4)}\).

---

\(^{(2)}\) Ibid., p.32.
\(^{(4)}\) Ibid., p. 146.
It was the Peripatetic School who considered his logic as "the general instrument, ὄργανον for all sciences". So, neither Aristotle nor the peripatatics were the source of al-Ghazālī's idea (i.e., logic is a science).

If we search in the works of other Greek logicians, we will find the origin of this idea (i.e., logic is a science) in Stoic philosophy. The Stoics are the first to consider logic as a science and one of the philosophical sciences, for philosophy, according to them, is "divided into three branches: logic, physics and ethics." This idea of the Stoics, here "became clear in their polemics with the new peripateticians who conceived logic as the instrument of all philosophy".

After that comes the period of the Greek commentators, which is an important period for tracing the origins of Arabic philosophy and its sources, in this period "we only come across commentators, particularly on Aristotle, who are either consistent Peripatetics or resort to a more or less organic syncretism". The older commentators "kept closer to the Aristotelian conception" of logic, with the later commentators "logical syncretism became more evident, a mixture of Peripatetics and Stoic conceptions".

(1) Ibid., p.146. It was Alexander of Aphrodisias (200 A.D.) who applied the word 'Organon' to logical doctrine. See: W.D. Ross, Aristotle, p.20.
(2) It is, I think worth mentioning here that "the Stoics were the first to use the term 'logic' and not Aristotle, as one at the first sight, may think. See: A. Dumitriu, History of Logic, vol. 1. p.221.
(3) Ibid., p.220.
(4) Ibid., p.220.
(5) Ibid., p.284.
(6) Ibid., p.285.
(7) Ibid., p.285.
From Proclus (412-485) onwards, we find - as shown by Prantal - that it was "generally acknowledged that logic is the first among philosophical disciplines and functions as the instrument for distinguishing between truth and falsehood and that this fundamental element (logic) helps all other sciences".\(^1\)

If we move to the beginning of the Islamic period, we will see that logicians of this period were acquainted with the different views of the Greeks concerning this matter. Habīb bin Bahrīz (ca.785-ca.860) the archbishop of Mawṣil, mentioned these views and the arguments of each view; he classified them into three:

(a) that of the Stoics, which considers logic as science and part of philosophy.\(^2\)

(b) that of the Peripatetics which considers logic as an instrument.\(^3\)

(c) that of the "Academicians", which considers logic as a part of philosophy and an instrument at the same time.\(^4\)

After discussing the arguments of each group, Ibn Bahrīz adopted the Peripatetics' view which he considered as Aristotle's view.\(^5\)

If we come to the first Muslim philosopher, Al-Kindī, (ca.800-ca.870), a contemporary with Ibn Bahrīz, we will not find in his extant works an unequivocal answer, in his treatise:


\(^3\) Ibid., p.116.

\(^4\) Ibid., p.116.

\(^5\) Ibid., p.116.
On the quantity of Aristotle's books and what is needed for studying philosophy, there is only brief information about Aristotle's books on logic and their purposes. Al-Kindī did not mention whether logic is a science or not; he told us that the one who wants to be a philosopher should start with mathematics then logic, physics, metaphysics and ethics. In al-Kindī's classification of the "philosophers' sciences" he did not mention logic among them; they are, according to him mathematics, physics and philosophical theology (ilm al-rubūbiyyah, i.e. first philosophy).

What can be said about al-Kindī's view on this point, is that logic is not a part of philosophy but a propaedic. If we proceed to a well-known translator and logician, Matta ibn Yunus (ca.870-ca.940), we will find that he considered logic as "an instrument by which the sound speech from the unsound, and the wrong meaning from the right, are known". Al-Fārābī, in his classification of the philosophical sciences, (in his treatise: Al-Tanbih 'alā Subul al-Ša'ādah) follows Aristotle. Logic is not mentioned, but it is con-

(2) Ibid., p. 378.
(4) This piece of information is found in the debate between Matta and al-Sirafi (see above pp35-36 ) in: Jalāl al-Dīn al-Siyūṭī, Sawm, p.192.
(5) It is the fifth treatise among a set of eleven collected in one volume entitled: Rasā'īl al-Fārābī, Hayder Abad,1926; (each treatise has its own numbering),(hereafter:Rasā'īl al-Fārābī).
(6) In this treatise, al-Fārābī divides philosophy into two main parts: theoretical and practical, the first is three sciences: arithmetic, natural sciences and metaphysics; the second part is two sciences: ethics and politics; see: Ibid.,(the 5th treatise: al-Tanbih) pp.20-21.
considered — in this treatise — as a discipline, șinā'ah(1)
"by which we know what true conviction is, and what false con­
viction is."(2) In his famous work: Iḥṣā' al-ʿulūm(3) there
is an interesting chapter on logic in which he considers logic
as a science, 'ilm and a discipline, șinā'ah which has different
parts; he defines logic as follows: "the discipline
(șinā'ah) of logic gives the laws which correct the mind and
guide man to the right and gives the laws which prevent him
from error in rational matters (ma'qūlāt)..."(4) It is not
clear in the Iḥṣā' whether logic is a part of philosophy or not.

Al-Fārābī's attitude is stated clearly in his work:
Al-Alfaż al-Musta' malah fī al-Mantiq, (the utterances employed
in logic): logic "is an independent discipline (șinā'ah),"(5)
"it is an instrument (al-ah) by which we achieve the knowledge
of existing things", (6) "this discipline (șinā'ah) should not
be thought of as a part of the discipline (șinā'ah) of philo­
sophy."(7)

---

(1) Al-Tahnawi(d. 1158 A.H.)— (in his Kashshāf ʾIṣṭilāḥat al-
Funūn, Calcutta edition, vol.1,1862, p.35) — explains
the meaning of this term; according to the ommonalty, șinā'ah
is a practical craft like sewing and weaving, but according
to the educated people, al-ḫassah, șinā'ah is a discipline
which has practical aims like: jurisprudence, fiqh, logic,
grammar and ethics. A person can be specialised in a
șinā'ah without the practical application of the knowledge
he has.

(2) Al-Fārābī, Rasā'il al-Fārābī, (al-Tanbih), p.21. The
Arabic is as follows: "عَدَّلَ ٌصَنَاعَةٌ [المنطق] ِفي ِالنَّبَأ ِبَعَدَّةٌ
عَلَى ِالإِعْتِنَاقِ ِالإِقْلِمِ، ِأَيُّ ِمَأْوِىِّ ِوَإِلَى ِالإِعْتِنَاقِ
ِالبَّاعِلِ، ِأَيُّ ِمَأْوِىِّ." (3) Al-Fārābī, Iḥṣā' al-ʿUlūm, edited by: 'Uthman Amin, 2nd

(4) Ibid., p.53.

(5) Al-Fārābī, Al-Alfāz, al-Musta'malah fī al-Mantiq, edited

(6) Ibid., p.107.

(7) Ibid., p.108.
He also rejected it as an instrument and a part of philosophy at the same time.

Al-Fārābī's disciple, Yahyā ibn 'Adī (893-974) has the same attitude to logic as his master in considering logic as "an instrumental discipline (ṣināʿah adawiyyah)". (1)

We come nearer to al-Ghazālī when coming to Ibn Sīnā (Avicenna). Ibn Sīnā considers logic as part of wisdom (ḥikmah) i.e. philosophy, which comes before physics and metaphysics. This is clear in all his philosophical works which deal with wisdom (i.e. philosophy) in general like al-Shifa', al-Najāt, (2) al-Ishārat wa al-Tanbihāt (3) and 'Uyūn al-Ḥikmah. (4) Logic also is a discipline (ṣināʿah) and an instrument (ālah) at the same time. Here is his definition of logic in al-Najāt: the "discipline (ṣināʿah) of logic...is the instrument (ālah) which protects the mind from error in what it (i.e. mind) conceives and assents; and by which certain belief is obtained by giving its (i.e. certain belief's) causes and following its (i.e. certain belief's) methods". (5)

It is clear, from what has been said, that the first to consider logic a part of philosophy are the Stoics, the first to consider logic as a propaedeutic is Aristotle, the first to consider logic as a propaedic and an instrument are the Peripatetics and the first to consider it (logic) as a part of philosophy and an instrument, at the same time are the Greek commentators, especially those of the neo-Platonic school from Proclus (412-48) on. (6)

(2) It is known that al-Najāt is considered as a summary of al-Shifa' which is Ibn Sīnā's philosophical encyclopaed magnum opus.
(5) Ibn Sīnā, al-Najāt, Al-Kurdi's edit.,second edit., Cairo, 1938, p.:
Among Muslim logicians, Ibn Sīnā was the first to consider logic as part of philosophy and an instrument at the same time, following the neo-Platonic commentators.

Al-Ghazālī, here followed the attitude of the school of Baghdad (i.e. Mattā, al-Fārābī and Yahyā ibn 'Adī) which followed the Peripatetic tradition in considering logic a propaedeutic and an instrument. The only new thing here is that al-Ghazālī insisted on mentioning jurisprudence, although the phrase "all sciences" should include it. This reflects his aim (i.e. convincing the students of jurisprudence to use logic) and the suspicious attitude of the scholar-jurists towards logic.

(c) The sources of the idea: logic is an accurate science:

The sources of this idea can be reduced to two facts:

(i) the unanimous agreement among the logicians and philosophers on the accuracy of logic; for none of them said anything contrary to this idea; (ii) the nature of logic, for Aristotle laid down the principles and rules of logic in a way similar to that of the mathematical systems, which results in an accurate logical system. This system has been criticised by modern logicians, even though none of them has denied its accuracy. It is true that, while no philosopher denied the accuracy of logic, not all agreed that it was a science. In fact, nothing essential was added to the main theory in the Aristotelian logic till the time of al-Ghazālī, even though one cannot deny that many additions occurred in subsidiary and secondary matters.

So al-Ghazālī here was following the preceding logicians.

---

(1) Ibn Khadūn tells us in The Mugaddimah, (translated by F. Rosenthal, vol.3, p.143), that the later logicians (al-muṭakḥhirun) made changes in the order of Aristotle's Organon, and consider logic "as a discipline in its own right".

(2) W.D.Ross, Aristotle, p.32.

(d) The sources of the idea: logic is a neutral discipline and an instrument:

We have already mentioned that Aristotle does not state that logic is an instrument but he considers it as a thing "which everyone should undergo before he studies any science,"(1) for it is, according to him, "not a deductive science but a science of deduction"(2) which is necessary to every science.

The Peripatetics explained this as an instrument; they called the collection of Aristotle's works on logic "The Organon" (ὄργανον means instrument),(3) which means the instrument of all sciences.

Even though the Stoics — as already mentioned — rejected the Peripatetics' idea (i.e. logic is an instrument), they considered it "the science of what is true or false or what is neither true nor false"(4) as defined by the Stoic philosopher Posidonius. So, it seems the neutrality of logic is implied in the attitudes of: Aristotle, the Peripatetics and the Stoics. It is easy to describe what is used in all sciences and used as an instrument or distinguishes between true and false, as neutral.

The same thing can be said about the attitudes of the Muslim logicians before al-Ghazālī.

But, as far as al-Ghazālī is concerned, the neutrality of logic has a special meaning and significance; it means — according to him — that logic is neutral vis-à-vis religion (i.e. Islam), and has no connection "with the essentials of religion that it (logic) should be denied or rejected".(5)

(1) W.D. Ross, Aristotle, p. 20
(2) A. Dumitriu, History of Logic, vol. 1, p. 147.
(3) Ibid., p. 145.
(4) Ibid., p. 221.
Its significance is that it (the neutrality of logic) was the starting point and the basis of his attempt to spread logic and make it accepted by the students of jurisprudence. Logic in the Islamic world was, until al-Ghazālī's time, viewed by religious and linguistic scholars as representing Greek philosophy and language, and therefore not neutral. So it was of great importance for al-Ghazālī to assure the students of jurisprudence that logic in itself is neutral. He gave formal examples of syllogisms and eduction to show that such thing has no connection with the essentials of religion; besides this he explains how some people come to believe, erroneously, that logic contradicts religion, which is due to causes outside the neutral nature of logic.

(e) The sources of the idea: logic is a criterion of knowledge by which we can distinguish between true and false knowledge:

This idea is implied in Aristotle's logic, for logic makes us know the exact ways of reasoning which lead to certain knowledge; when the conditions of reasoning are not fulfilled the conclusions will be false.

This is what the logicians of the Peripatetic school understand by logic. It was the Stoics who used the term 'criterion' as an essential quality of logic; they developed a "theory of criteria" and considered it as "a section of logic."

(1) This idea was used by Al-Sīrāfī in his debate with Mattā bin Yūnus; this celebrated debate "was a major literary event", M. Mahdī, LLCI, p. 54. The text of this debate is preserved in Abu Hayyan al-Tawhīdī, al-Iṣṭī'a wa al-Mu'ānasah, ed. A. Amin and A. al-Zaīn, vol. 1, Cairo, pp. 108-128.
(2) In al-Mungidh, al-Ghazālī gave the following example: "if it is true that all A is B, then it follows that some B is A," W. M. Watt, FPG, p. 35.
(3) Ibid., p. 36.
(5) Ibid., p. 222.
The idea: 'logic is criterion' is found with the Greek commentators whose attitude to logic was "a mixture of Peripatetic and Stoic conceptions". (1)

This idea was transmitted to the Islamic world, Mattā ibn Yūnus compared logic with the balance (mīzān), by which true knowledge from false can be distinguished. (2)

Al-Fārābī elaborated the explanations of this idea, in which he considered that logic is to rational matters as grammar is to language and metre is to poetry. (3)

The same idea is repeated by Ibn Sīnā who considered logic to be a canonical instrument which prevents the mind from committing error, and by which one can reach the truth. (4)

Al-Ghazālī followed al-Fārābī and Ibn Sīnā, and repeated the same comparisons they made; but he asserted more strongly than they did, the idea of 'criterion' in his books on logic, especially al-Qiṣṭās al-Mustaqīm. (5)

From what has been said above, it is clear that the ultimate source of this idea is Stoic logic, while Aristotle's logic can only be considered as an indirect source.

(f) The sources of the idea: logic is mainly two parts - the study of definition and the study of demonstration:

Reducing logic to two main divisions is connected with the generally accepted division of knowledge among Islamic

(1) Ibid., p.2.
(3) See: Al-Fārābī, al-Tanbih, p.23 and Iḥṣā' al-‘Ulūm, p.54.
(4) Ibn Sīnā, Ishārāt, vol.1, p.117.
(5) See the chapter: Logic and the Qur'ān.
philosophers, which are: conception (tašawwur) and assent (tašdiq)(1); each of them is sub-divided into two: primary (awvalî) and acquired (muktasab). The primary conceptions and assents are self-evident knowledge and are not acquired, while acquired conceptions are acquired by definition and acquired assents are obtained by demonstration(2)(i.e.syllogism with true premises).

The origin of these two Arabic terms (i.e.tašawwur and tašdiq) "has baffled modern scholarship for over a century(3). The division of knowledge into tašawwur and tašdiq is not found in Aristotle's logic, in spite of the attempts to find their origin there.(4) Ibn Rushd (Averroes') was the first to make such an attempt.(5)


(2) This division of knowledge is found in all the Arabic manuals of logic from the time of al-Farabi until this century.


(4) Ibid., p. 119

(5) Ibid., pp. 119-120.
These unsuccessful attempts made a scholar like Nallino declare that these terms are 'oriental'.

This bafflement came to an end after the recent attention paid to the logic of the Stoics. It seems that the source of these two Arabic terms, which begin with al-Fārābī, was found in this logic.

But, even though al-Fārābī and the Islamic logicians after that, may have taken these terms from the logic of the Stoics, they did not follow this logic to its end. They said that the 'acquired concept' (taṣawwur) is acquired by definition and adopted Aristotle's theory of definition; and said that 'acquired assent' (taṣāq) is obtained by demonstration (burān) and adopted again - mainly - Aristotle's theory of demonstration to which they added some Stoic elements which do not change the form of Aristotle's theory; so they applied Aristotelian theories to concepts taken from the Stoics.

The Islamic logicians, of course, do not deny the other subjects in logic apart from 'definition' and 'demonstration', but they consider them as subjects wanted for the

---

(1) Ibid., p. 125.
(2) The Polish logician Łukasiewicz in 1927, was the first to show that Stoic logic had differed essentially from Aristotelian logic, with which it was later confused. The difference lay primarily in two circumstances: (a) Stoic logic was a logic of propositions, while Aristotelian logic was a logic of classes. (b) Stoic logic was a theory of inference schemes, while Aristotelian logic was a theory of logically true matrices”. Benson Mates, Stoic Logic, pp.2-3.
(3) The Muslim logicians added the hypothetical and disjunctive syllogisms, which are Stoic, to the three categorical figures of syllogism, which are Aristotelian, and used these types in Aristotle's theory of demonstration. In fact, they were following the steps of the Greek Peripatetics who were aware of the Stoics' interest in the hypothetical and disjunctive syllogisms.
sake of these two: and that is why they consider them (defini-
tion and demonstration) as the main divisions of logic; a
stance which is neither Aristotelian nor Stoic.

In the light of this discussion, we can say that this
idea, here, which al-Ghazālī inherited from the earlier Mus-
lim logicians, has a threefold source: it is an Islamic(1)
application of Aristotelian theories to Stoic conceptions.

(f) General assessment of the sources of al-Ghazālī's at-
titude towards logic:

It is clear from what has been mentioned above, that
Muslim logicians were familiar with Aristotelian logic(2), the
logic of the Stoics(3) and the logic of the Greek commentators.

What the researcher into the history of logic in Is-
lam, can easily see is that the Muslim logicians take elements
from the logic of the Stoics and amalgamate them with the

(1) The word 'Islamic' here does not mean, of course, the at-
ttribute to the religion but to the Islamic world.
(2) The word 'Aristotelian' here includes the logic of the
peripatetic school.
(3) We came across an important short text in al-Farābī's
treatise: Risalat Zīnūn (the treatise of Zeno), (It is
the seventh in the collection: Rasā'il al-Farābī, Haydar
Abad, 1926), concerning the acquaintance of Muslims with
the Stoic philosophy; this is the text of al-Farābī:

"I saw treatises - of Zeno the great, the disciple of
Aristotle, and of the Greek master (shaykh) - which had
been interpreted by the Christians. They left some
parts of them (without interpretation) and added to oth-
ers. So I interpreted as the interpreter should do in
a text. The first of these is a treatise of Zeno the
great." p. 3.

Al-Farābī, here, considers Zeno (336-264 B.C.) a disciple
of Aristotle (384-322 B.C.). The sources of this wrong
information and its surrounding circumstances needs fur-
ther investigation. The nickname: al-Shaykh al-Yunānī,
here, is given by the Muslim philosophers to Plotinus
(205-270 A.C.). See: A. Badawi, Aflūtīn 'ind al-'Arab,
Cairo, 1955, pp. 1-3. Although this treatise does not seem to have
nothing to do with Stoicism, still mentioning Zeno here has some indication.
See: F. Rosenthal, 'Al-Shaykh al-Yunānī and the Arabic Plotinus Source,'
Ana, 21 (1952).
the Aristotelian logic, considering the former as an extension of the latter and not as an independent logic. It is the same attitude of the later Greek commentators towards these two systems of logic.

Bearing this observation in mind, we can say, in general, that al-Ghazālī takes his attitude to logic from the preceding logicians: Ibn Sīnā firstly and, secondly, al-Farābī, and nearly all the main ideas of this attitude go back to Aristotelian logic and the logic of the Stoics. There is one main idea which can be described as 'Ghazalian', it is 'the neutrality of logic regarding religion'.

4. Discussion and comments:

It is necessary, in order to have an accurate understanding of al-Ghazālī's attitude to logic, to be acquainted with the existing circumstances of his time and the aims by which he was motivated to adopt this attitude. It is difficult to see to what extent it is true to describe al-Ghazālī's attitude to logic as 'revolutionary' — as mentioned above(1) unless we consider it with reference to these circumstances.

In what follows we are going to shed light on the circumstances and al-Ghazālī's reactions to them.

(a) The relevant circumstances of al-Ghazālī's attitude:

Al-Ghazālī taught the religious sciences for a long time(2) during which he became widely known as a scholar-jurist and theologian, mutakallim, and, after that, for his attacks on the philosophers.

---

(1) See above. p.
(2) Al-Ghazālī was appointed as professor at the Nizāmiyya college in Baghdad in the year (484A.H.-1091A.D.); he was then 33.
In his time, there were two kinds or systems of education: religious education, which al-Ghazālī studied and had become widely known. This system used to concentrate on religious sciences i.e. the sciences of the Qurān, tradition, theology and jurisprudence; secular education which used to concentrate on philosophy, logic, natural sciences, mathematics and medicine or, in other words, the Greek sciences.

The system of religious education was much more widespread than the system of secular education. Most of the students of religious education were seeking specialisation in jurisprudence and were aiming to get a post or a career in some branch of public service or the administration of the government, which as al-Ghazālī described, "gives them the opportunity to take precedence over their peers and to overwhelm their enemies:" and so there were more jurists, fugahā', than society required. The study of jurisprudence was being pursued in an academic fashion that was out of touch with the needs of society, for most of it was, according to the description of al-Ghazālī, on "contentious and dialectic matters".

There had been remarkably little contact between the two systems of education. The masters of religious education (i.e. scholar-jurists) looked on the masters of secular education (i.e. philosophers) and their sciences with suspicion. This was reflected in society. "Owing to the widespread popular and scholarly suspicion of the philosophers, it was difficult for any scholar-jurist to refer to any philosophical work in his writings".

(1) See: Mi'yar, p.60. and the Ihya', vol. 1, pp.4-5.
(2) W.M.Watt, Muslim Intellectual, pp.110-111.
(3) Al-Ghazālī, Ihya', vol. 1, p.19.
(4) Ibid., p.19.
(5) W.M.Watt, Muslim Intellectual, p.66.
Logic was confined to secular education and the philosophers; logic and philosophy were inseparable to the extent that the words 'philosopher' and 'logician' were used as synonyms.

In the schools of religious education - where the majority of the students were studying jurisprudence - logic was not only not taught but was regarded with suspicion, uncertainty and hostility. This attitude towards logic had become widespread. The slogan, 'man tamanţqa tażandaq', 'he who practises logic courts heresy', reveals the nature of this widespread hostility. This public view of logic became so strong that some of the scholar-jurists who were curious to study logic were obliged to do so secretly for fear of being accused of innovation or corruption in their faith.

On the political side, power was in the hands of the Seljūqs. There was the strong presence of the Ta'limites or al-Baţiniyyah who were threatening the Seljūq government which tried to destroy them by every possible means. One of those means was using the writing of a famous and popular scholar-jurist and theologian al-Ghazālī, to refute their ideology. This effort made al-Ghazālī sure of the support of the government for him.

(b) Al-Ghazālī's aims:

Al-Ghazālī, in this environment, felt that the existing system of religious education was in need of reformation to

---

(1) It was reported that Ibn al-Salāh (+643 A.H.) went to al-'Imad Ibn Yunus secretly to learn logic from him, and that the latter advised him to give up when he found that Ibn al-Salāh was not able to understand logic. He reminded him that people thought well of him and they accused everyone who dealt with logic with the corruption in faith. See: Ibn al-Subki, Tabaqāt a l-Shafi'iyya, vol.5, p.162.

(2) See: W.M.Watt, Muslim Intellectual, pp. 174-175.
enable it to realise the main aim of religion which, in al-
Ghazālī's view, was the achievement of welfare for all people
in this life and the hereafter. (1) So he considered it his
duty to reform this system.

For the reformation of the system to realise the best
for all people in the hereafter, al-Ghazālī wrote his great book
Ihya' 'ulum ad-dīn, in which he expounded in detail what is re-
quired from a person in this life so that he may always be near
to God and prepared for the life of the world to come. (2)

For the reformation of the system to realise the best
in this life, al-Ghazālī thought that the introduction of logic
in its curriculum (i.e. that of the religious education) would
be of great assistance.

This latter aim (i.e. realising the best in this life)
was more difficult and involved a higher degree of risk. Its
difficulty lay in the fact that al-Ghazālī was attempting to
change a view which had dominated the circles of religious edu-
cation and society for more than three centuries (i.e. hostil-
ity to logic). The risk was implied in the fact that, in his
time, any opposition to the scholar-jurists in any matter they
unanimously agreed on, was not easy or simple. The reaction
to such an attempt, at the lowest estimate, might be accusation
of heresy which would bring about imprisonment or exile.

(c) Al-Ghazālī's plan to realise his aims:

Al-Ghazālī was aware of this. So he was cautious in
expressing his views. Taking advantage of the circumstances
of his time, he set out his views in a circumspect way and ac-
cording to a plan which involved several stages.

(1) See: W.M. Watt, The Faith and Practice, p.27.
(2) See the introduction of the Ihya', vol. 1, pp. 2-3.
Al-Ghazālī, in fact was striving in different ways to convince those who were dealing with jurisprudence — who were the majority of the educated people in his time\(^{(1)}\) and were the masters of the institutions of religious education — to accept the fact that logic is a neutral tool of knowledge and to study it and then to use it in their judicial studies.

In the first stage, he attacked the philosophers whilst at the same time he confirmed the neutrality of logic.\(^{(2)}\) Then he assured the scholar-jurist that logic is not alien — as it was commonly thought — to the Islamic sciences nor to Islam itself: for it was already known to, and practised by, the theologians, who only differed from philosophers with regard to logic in so far as their use of it was not so sophisticated.\(^{(3)}\) He had himself compiled some works in which he treated these matters in the same way as the theologians.\(^{(4)}\) Moreover, according to him, the syllogism, which is the main part of logic is found and "already used and recommended in the Qur'ān."\(^{(5)}\) Although he attacked the philosophers and defended Islam, he also demonstrated that he had arrived at a certain belief of Islamic doctrine by means of logic.\(^{(6)}\)

In the second stage he wrote for them (i.e. the scholar-jurists) books on logic\(^{(7)}\) which were easier and less complicated than those of the philosophers and more elaborate than those of the theologians. He recommended them as good text books and manuals of the subject.

---

\(^{(1)}\) Mi'yar, p.60.
\(^{(2)}\) See above pp.29-30.
\(^{(4)}\) Mi'yar, p. 60.
\(^{(5)}\) Josef Van Ess, LSIT, p.47.
\(^{(6)}\) Al-Qisṭas, p.81.
\(^{(7)}\) See above, p.28.
Thirdly, he explained to them how logic could be applied to jurisprudence. He did this in his books on logic, by giving juridical examples to explain some rules and conditions of logic, and in his books on the principles of Islamic Jurisprudence (Usul al-figh), especially al-Mustafa and Shifa' al-Ghalil, in which he actually applied many rules of logic to jurisprudence. Thus he attempted to prove his statement in the introduction of al-Mustasfa: He who does not master logic cannot be certain of his knowledge.

(d) Factors which helped al-Ghazali in the successful presentation of his views on logic.

In his attempt to revitalise the system of religious education, al-Ghazali was sure of the support of the Seljuk government if the scholar-jurists should try to attack him; that was because he had rendered a great service to the government in refuting its enemy the Ta'ilmites. His widespread reputation as a scholar-jurist and a theologian, and also his attack on the philosophers, were among the factors which made his attempt successful.

In addition to this, al-Ghazali was aware of the fact that in order to be able to convince the scholar-jurists of the utility of logic and to accept it in their curriculum, he should address them in language they could understand if it was not possible to use their own language. (1) So when al-Ghazali compiled his works on logic, he did not use the logicians' style

(1) Al-Ghazali, in Mi'yar, justified his unusual method, i.e. explaining the rules of logic by juridical examples, by saying that if the speech were with a carpenter who knows well only woodwork, it is the duty of his guide to give him examples from his profession, in order to be nearer to his understanding. See: Mi'yar, p. 61.
and terminology, he used a style with which the scholar-jurists were familiar and for which they had no distaste. He exchanged the logicians' terminology for a new one without changing their concepts or, as al-Ghazālī himself described it "changing its clothing". (1) Thus his books on logic, as rightly noticed by Ibn Ṭumlūs (ca.1160-1223), were widespread in contrast to those of the philosophers, although their books came fairly close to Aristotle's logic and were technically more accurate. (2)

Another factor which helped bring al-Ghazālī some success, was the subtle order of presentation which he used to make logic available to the scholar-jurists. This has already been mentioned but, in fact, this presentation was a great help to him in winning his opponents over to the acceptance of logic.

(e) Al-Ghazālī's attitude was revolutionary:

It seems clear in the light of what has already been mentioned, how al-Ghazālī's attitude to logic was 'revolutionary'. He wanted to change a strongly held public view formed on religious grounds (i.e. hostility to logic), and replace it with new views (i.e. accepting the neutrality of logic and using it in the juridical studies). In fact, al-Ghazālī wanted to change the attitude of the scholar-jurists and the public towards logic from considering it as a useless discipline and dangerous to religion to considering it as a useful one and helpful to religion and religious sciences. He was trying to change an extreme attitude to the opposite extreme, something which made his task more difficult.

It is easy to discern that from the beginning al-Ghazālī tried to separate logic from philosophy and to deal with it

(1) Al-Qistās, p.67.
(2) Abū al-Hajjāj Yasuf Ibn Ṭumlūs, Al-Madkhal li Ṣinā'at al-Mantiq, edited by: Asin Palacios, Madrid, 1916, p.8. Ibn Ṭumlūs was a Spanish Muslim physician. He wrote on medicine and on philosophical subjects, primarily logic. See: N. Rescher, DAL, p.188
as a separate discipline. This procedure was novel to a considerable extent for both philosophers and scholar-jurists, because the prevailing idea was that logic and philosophy were inseparable, as already mentioned. This attitude, even though it did not meet the approval of the philosophers, was nonetheless not criticised by them; the criticism came from the scholars of religion.

Al-Ghazālī's attitude was not entirely new, Ibn Ḥazm (994–1064) had tried it two generations before. He defended logic and expounded it using examples from fiqh, but he did not try to introduce it into the curriculum of religious education and apply it to the Islamic sciences — as al-Ghazālī did. Furthermore, this happened in the West, far away from the centre.

In fact, al-Ghazālī's attitude to logic was the beginning of a new epoch in which scholars in religious sciences began to mix overtly their sciences with foreign sciences, i.e. philosophy and especially logic.

Al-Ghazālī succeeded in propagating his revolutionary attitude to logic and unburdening some of the scholars of religious sciences from what can be called 'the complex of Greek logic'.

Al-Ghazālī felt that there was no danger to Islam from logic; if, in the first two centuries of Islam during

---

(1) It is probable that the philosophers in the schools of secular education felt that al-Ghazālī's views were in their interest, and would lead in the end to the spreading of their sciences.

(2) Like Ibn al-Ṣalāḥ and Ibn Taymiyya.


(4) J. van Ess, LSIT, p. 47.

(5) A.S. al-Nashshār, Manāhij, p. 132.
which the Islamic sciences were not finally established, some of the scholar-jurists feared for the Islamic sciences and Islam from the Greek enchantment (1) i.e. logic; such a fear should not exist in the fifth century when the Islamic sciences were already established and deeply rooted in the society.

There were, at the time of al-Ghazālī, many scholar-jurists who did not possess any original thought; they only repeated, without genuine understanding(2) what the preceding masters had said.

Al-Ghazālī thought that this blind adoption was dangerous to religion and society, because it did not satisfy the need of society for solutions of new problems, and he found that the best way to liberate them from this ingrained defect and to make them more receptive was to learn logic which would give them the courage to discuss inherited ideas and evaluate them in the light of its criteria.

----------------

(1) It was reported by Ibn al-Nadīm that the caliph, al-Ma'mūn sent a mission to Constantinople to look for Greek books, and when the Byzantine King refused to give the books, among which were books of philosophy and logic, the Archbishop advised him to let them take the books saying that these books never came into a people of religion (milla) without demolishing it and destroying its structure. See: Al-Fahrist, Cairo's edition, p.339.

(2) In al-Mungidh min al-Dalāl, al-Ghazālī mentioned this kind of scholar-jurists who have "weaker intellects" and "take the men as criterion of the truth and not the truth as a criterion of the men". (Al-Mungidh, E.Tr., p.39). He also criticised those who reject the true and "reasonable statements" which are "supported by proof and...do not contradict the Book and the Sunnah". (Ibid., p.41).
CHAPTER THREE

LOGIC AND CERTAIN KNOWLEDGE

ACCORDING TO AL-GHAZĀLĪ.
Logic and Certain Knowledge according to al-Ghazālī.

1. Introduction:

Among the things to which al-Ghazālī attached great importance was the problem of certainty; he gave it much time and effort; he described, in his auto-biographical work: Al-
munjidh min al-Dalāl (Deliverance from Error), how much he suf-
fered in seeking certain knowledge and truth in general. (1)

In his quest for truth, al-Ghazālī was trying to find a method by which certain knowledge can be achieved. He found this method in logic. It is an objective method and can be applied to every branch of knowledge. He also consid-
ered that there was another method or way to achieve certain knowledge, but that was subjective and only a few people could achieve certain knowledge by this way, (i.e. the way of true šūfīs)(2). In this chapter we are going to show the relations according to al-Ghazālī, between logic and certain knowledge.

2. The concept of certain knowledge:

Knowledge has two elements:

(1) Conceptual knowledge: al-'ilm al-tasawwurī: it is knowledge of the concepts of the essences of things, such as our knowledge of: man, tree, sky...etc. None of this know-
ledge can be described as true or false in itself. (3)

(2) Assentual knowledge: al-'ilm al-taṣdīqī: it is the knowledge of the relations of affirmation and negation

---

(1) See: Al-Ghazālī, Iḥyā', vol. 1, pp.18-19
(2) See: Al-Ghazālī, Al-Munjidh (E.Tr.), pp.54-63.
between the concepts of the essences of things; i.e. the propositions which can be described as true or false. (1)

Knowledge - both conceptual and assentual (2) - has real and metaphorical meanings. The first is "the knowledge that exists in the soul (i.e. mind), whose reality is due to the model (or image) of the known, is engraved in the mind and congruous with it". (3) The second is like: words, writing and speaking to oneself; these three, which denote knowledge in a metaphorical way, are three external appearances, gushūr, of the real knowledge. (4)

What can be understood from the definition of knowledge (5) here is:

(a) real knowledge is not a thing which can be found outside mind, i.e. for instance, in books. To have real knowledge means that there must be a knower, which is the mind and a thing known, which is a replica within the mind of what is outside the mind;

(b) real knowledge must be completely clear in one's mind, because it is an exact replica of the known (i.e. model) in the mind; and therefore the unclear or inexact models of things in one's mind are not real knowledge.

(c) real knowledge of the known, (i.e. the model in mind) can be changed if the known is changed.

(2) See above, p.48, n. 1.
(3) Mi‘yār, p.183.
(4) Ibid., p.183.
(5) F. Rosenthal, in his work: Knowledge Triumphant, pp.46-69 quoted 107 definitions of the Arabic term "ilm" (knowledge) classified in 12 categories, this reflects the great interest Muslim scholars have in knowledge and the importance of determining its limits.
(b) The concept of certainty:

Certainty in general is "the submissiveness and calmness of mind when it assents to a certain proposition"; it is a common noun used in two different meanings by two groups of people:

(i) certainty as used by the philosophers, theologians (mutakallimun) and their opponents in discussion in general. (2)

(ii) certainty as used by the 'scholars of hereafter' such as the scholar-jurists, the ṣūfis and others. (3)

Certainty in the first meaning is the objective certainty which is required in rational discussions and the different sciences; it is the certainty which al-Ghazāḷī expounded in his books on logic.

Certainty, in the other meaning, can be called 'subjective certainty'. In it we are concerned with the extent the mind is impressed by an idea and not whether we doubt it or not. (4) For instance, no-one has doubts about death, but the impression of this idea on individuals' minds is different in strength and weakness. We are not going to say more about this 'subjective certainty' because it has no relation to logic. Our concern will be for 'objective certainty', i.e. certainty according to philosophers and theologians.

There are three degrees of 'the submissiveness and calmness of mind when it assents to a certain proposition', in this meaning. One of them is complete certainty and the other

---

(1) Iḥyā', vol. 1, pp. 64-65. This is similar to suḥūn al-naṣ' of the Muṭṭazīḷah.
(2) Ibid., vol. 1, p.64.
(3) Ibid., vol. 1, p.64.
(4) Ibid., vol. 1, p.65.
two are not completely certain but nearly certain.

(1) Complete certainty: in this degree the mind is certain about the truth or falsity of a certain proposition and it (the mind) is sure of this certainty. Then another assurance is added to the first, confirming that there are no mistakes or inattentiveness or confusion in it, so that the mind enters a phase of certainty, which can be described as absolute certainty. Thus, if the contrary to a man's belief was told to him by a more excellent person or was narrated to him from a prophet, he would not hesitate to deny it and laugh at what had been told to him.\(^1\)

Here are some examples of this degree of certainty: "three is less than six; one person cannot be in two places (at the same time)"; "the thing cannot both be eternal and created or existing and non-existing at the same time, or motionless and moving at the same time".\(^2\)

Two things should be noticed in al-Ghazālī's description of certainty here: (i) certainty, about a proposition, becomes complete in two stages. The first is that in which the mind feels certain about the trueness or falseness of a proposition spontaneously and effortlessly. The second can be considered as a checking and rectification of the certainty achieved in the first stage, so that this checking and rectification bring forth an absolute certainty which no contrary statement could shake or change, even if such statements were reported from a prophet. (ii) there are no degrees or differences in this certainty; it is one degree which can-

---

(1) Al-Ghazālī, al-Mustaṣfa, p.43 and Miḥakk al-Naẓar, p.45.

(2) Al-Ghazālī, al-Mustaṣfa, vol. 1, p.43.
cannot be more or less. (1)

So, this certainty, here, is not only a rational intuition which happens suddenly and spontaneously (first consciousness of certainty) but is also a result of a conscious mental effort directed towards a subject, which was the first consciousness of certainty (i.e. the first stage), and has an aim which is examining this subject i.e. the first consciousness of certainty.

Al-Ghazālī described this certainty as similar to a dinār of pure gold which is not mixed with other elements. (2)

2. Decisive belief; (al-i'tiqād al-jazmi) it is to assent to a proposition so that the mind does not feel any contradiction in it. If one was told that its contrary was true, it would be difficult to listen to such a statement. If one happened to listen, and then was told that this saying, which is opposite to one's belief, was transmitted on the strength of the most knowing person or the prophet Muḥammad, "this would cause a pause in one's belief" (3) i.e. one would become unable to judge whether one's belief was true or false, yet one would tend to continue to believe in one's first belief.

The example of this is the belief of the commonalty of Muslims, Christians and Jews in their varying religious views and their doctrines (madhāhib) and even the belief of most of the theologians (mutakallimūn) in defending their

---

(1) Iḥyā', vol. 1, p. 65. See also al-Ghazālī's al-Iqtisād fi al-I'tiqād, (Cairo, 1320 A.H.), p. 101, where he confirmed the idea that the demonstrated assents, al-taṣdīq al-burhānī, cannot increase or decrease.

(2) Mī'ār, p. 184, Iḥyā', vol. 1, p. 64.

(3) Mīḥakk, p. 46.
madhāhib by evidence. That is because they, (the mutakallimūn) accepted the doctrines and the evidence on the sound judgement and trustworthiness of the masters of their schools whom they trusted because they had heard them praised and defended since boyhood. (1)

The 'decisive belief' is not real certainty, but it can be so if it is possible for these beliefs to be deduced from certain premises by using valid syllogisms, which al-Ghazālī called 'criteria of knowledge'. (2) If this possibility were actualised, these beliefs would be certain knowledge in the real meaning of the word, (as explained above). Al-Ghazālī's "inherited" belief in the Prophet Muḥammad and the Qur'ān, as he mentioned in his work al-Qistās al-Mustaqīm, became certain knowledge in this way. (3)

Al-Ghazālī told us that the people who base their beliefs upon independent thinking without being affected by any influencing factors outside their subject of thinking, so that, before examining all the ideologies of the different religions and schools logically, (i.e. in the way mentioned above), they consider them to be equal, are very rare. Al-Ghazālī expressed this idea in these words: "the independent in thinking, to whom atheism, Islam and other creeds are equal (as a subject of thinking) before being examined (logically) are very rare". (4)

Al-Ghazālī made this 'decisive belief' similar to a dīnār of gold which is nearly pure gold. (5)

---

(1) Ibid., p.46.
(2) The 'criteria of knowledge' are the five types of syllogism. See the explanation of them below, pp. Al-Qistās, p.81.
(3) Miḥakk, p.46. see the same idea also in al-Mustaṣfa, p.44.
(4) Mi‘var, p. 184.
3. Probability (zann): it is the assent to a certain proposition accompanied by calmness of mind concerning this assent, but this assent and this calmness may be associated with the feeling that it is possible for its (i.e. the proposition’s) contrary to be true. Even if this feeling (of the possibility of the contrary being true) was not in one’s mind and one was told the contrary of the proposition to which one had assented, "one’s temper would not have a distaste for accepting it" (1) (i.e. the contrary). So in "probability" one may accept the contrary of the propositions one had, but one’s mind still tends to consider these propositions as true. This tendency is due to some reasons such as hearing a certain saying and listening to it frequently (2) or taking it from one’s parents or teachers whom one trusts and respects. (3)

"Probability", according to this description, is not one degree, "it has innumerable degrees of tendency to excess and deficiency" (4). For instance, the assent to a certain proposition can be "probability" because we received it from a single source i.e. one person, but this assent can increase and become stronger to the extent that it becomes 'certain knowledge'. This can happen if the reporters of the proposition reach the degree of "wide transmission" (tawâtur), or it was asserted (5), for instance, by perception. (6)

Al-Ghazâlî’s probability (zann) is similar to a

(1) Mihakk, p. 46.
(2) Mi’yar, p. 200.
(3) Mi’yar, p. 200.
(4) Mihakk, p. 46.
(5) Al-Mustaṣfa, p. 44, and Mihakk, p. 47.
(6) The perceptuals and those known from innumerable narrators are certain according to al-Ghazâlî; see below, pp. 72-73, 74-75.
dīnār of gold in which there is a lot of base metal, so it is neither real gold nor nearly real. (1)

(c) The concept of certain knowledge:

After the determination of the terms 'knowledge' and 'certainty', al-Ghāzālī gave a definition of the term 'certain knowledge' as follows: "Certain knowledge is to know that a thing has such and such a quality accompanied by the affirmation that it (the thing) cannot be otherwise. If you attempted to entertain in your mind the possibility of error, or confusion, about it, this (i.e. the possibility of error) will definitely not occur. For if the possibility of error is attached to it, then it is not certain". (2)

This definition is concerned with the determination of 'certainty' in knowledge, it did not touch on the concept of knowledge itself, because his concern was concentration on certainty and how it can be achieved. Al-Ghāzālī's determination of the concept of certainty here, is in accordance with his determination of the 'complete certainty' mentioned above. (3)

One can say here, that certainty is a psychological state which comes as a result of mental effort. This is clear when a person attempts to entertain the possibility of error in his mind and see whether he is capable of doing so or not. After that, he draws the conclusion (i.e. whether the proposition he examined is certain or not).

Propositions, only, can be described with 'certainty', because 'certainty' is either assent or denial of a proposition, and so 'concepts' cannot be described as 'certain'.

(1) Mi'yar, p. 184.
(2) Ibid., p. 246.
(3) See above, pp. 64-65.
Concepts, also, are needed for propositions, because we cannot know what a proposition means if we do not know the concepts of its parts (1) (i.e. the subject and the predicate).

Certain assentual knowledge (i.e. certain propositions) is of two kinds. (i) Primary propositions of whose certainty we become sure, without any proof; (ii) non-primary propositions of whose certainty we become sure by demonstration. (2)

Most of the knowledge, which is taught in the different sciences, is non-primary propositions which are achieved by demonstration.

3. The method of achieving new certain knowledge:

Demonstration (al-burān or al-ḥujjā), as mentioned above, is the only method to achieve non-primary certain knowledge in the different sciences. Al-Ghazālī maintained this idea by saying that non-primary knowledge "cannot be achieved except by demonstration which is syllogism" (3); it is what "produces the necessary permanent certainty". (4)

Demonstration is a valid syllogism whose premises belong to certain knowledge. (5) Sometimes, non-certain premises are used in a valid mood of syllogism, but this is not a demonstration, because the conclusion follows the premises. (6)

For instance, if the premises are probable knowledge, (zanniyyah) the conclusion, also, will be probable knowledge.

So, there is a difference between syllogism and demonstration. We can say that every demonstration is a syllogism,

---

(1) Mi‘yār, p. 182.
(2) Miḥakḳ, p. 6 and Mi‘yār, p. 68.
(3) Ibid., p. 6.
(4) Mi‘yār., p. 257.
(5) Ibid., p. 246.
(6) Miḥakḳ, p. 47.
but not every syllogism is a demonstration, because the premises in the latter should be certain knowledge. So demonstration and syllogism are different in 'matter' and similar in 'form'.

Therefore, in order to achieve certain knowledge, we should be aware of two principal features: (a) the 'form' of demonstration which is the form of valid syllogisms, i.e. the conclusive moods of the three figures of the categorical syllogism, the hypothetical syllogism and the disjunctive syllogism, and their rules; (b) the 'matter' of demonstration (i.e. the kinds of premises that can be used in it), which should be certain propositions.

The first of these two features is the important part of traditional logic which every student of logic should learn.(1)

The second feature (the matter of demonstration) concerns the different kinds of certain propositions.

It is necessary to examine both the certain propositions and the non-certain propositions in order to be able to distinguish between the two kinds, which al-Ghazālī has described as "the premises of syllogism".

Al-Ghazālī, in using demonstration as the only method for achieving new certain knowledge, is following Aristotle in spite of his rejection of the Aristotelian explanation of how some of the premises of syllogism derive their certainty(2).

---

(1) We are not going to expound it here because it is available in any text book dealing with traditional logic.

4. The premises of syllogism:

Al-Ghazālī divided the premises used in syllogism into two parts using the attribute 'certain' as a 'difference' (1). This (i.e. using 'certain' as a difference) reflects al-Ghazālī's interest in certainty. These two parts are:

(i) Certain-true premises which must be accepted. (2)

The premises of demonstration are of this kind. (3)

(ii) Non-certain premises which cannot lead to certain knowledge.

(i) The certain-true premises are sub-divided into five kinds:

(a) Purely primary-rational premises (awwaliyyāt 'aqliyyah manhāh): they are propositions which man's mind accepts necessarily with the feeling that he has always known them and that he has acquired them from no other source outside his own mind. (4)

Examples of this kind are the propositions like: the same thing cannot be eternal and temporal at the same time; affirmation and negation cannot be true in one thing; or two is more than one. (5)

The assent to these propositions must be preceded by the knowledge of the concepts of their terms. For example, in the first proposition, the person should know firstly the concepts of 'eternal' and 'temporal'; when the faculty of thinking "collects these words and relates one to the other" (6) i.e.

(1) Difference (Differentia) is "the attribute or group of attributes which distinguish one species from all others under the same genus". J. Welton, A manual of logic, vol. 1, London, 1904, p. 83.

(2) Mi'yar, p. 186.

(3) Ibid., p. 186.

(4) Ibid., p. 187.

(5) Ibid., p. 187.

(6) Mīhakā, p. 48.
makes a proposition, "the mind, all by itself, judges (this relation) either by assent or denial"(1). This judgment is associated with the feeling that the person does not know when he, for the first time, had the knowledge of this proposition, and that it is as if he knew it at all times.(2).

(b) Premises based on sense-perception, (al-mahṣūsat): they are propositions which we achieve either by means of the external five senses, such as: the moon is round, the sun is shining, coal is black...etc, or by the internal sensation, such as the knowledge of our psychological states, like knowing that we are afraid or angry or thinking(3)...etc.

The mind cannot attain such propositions if it (the mind) is not in association with the senses(4), and so, they differ from the rational-primary propositions.

We must not doubt the certainty of this kind, but only after examining the things which cause error in sense perception which are: the weakness of the senses, the density of the medium and the distance between the senses and the sensible things.(5)

(c) Empirical premises: al-Ghazālī subdivided these into two kinds:

(i) The empirically tested premises(6)(al-mujarrabāt): they are propositions on which the mind passes judgment that they are true, "after the repetition of perception and by means

---

(1) Mihakk, p. 48.
(2) Mi‘yar, p. 187; Mihakk, p. 48.
(3) Mi‘yar, p. 187.
(4) Ibid., p. 187.
(5) Ibid., p. 188.
(6) Here again, I have followed M.E. Marmura in his translation to al-Ghazālī's term (al-mujarrabāt) which occurs in his GDS, p. 194.
of a hidden syllogism"(1) of which the mind is not aware.(2) Such propositions are like our judgments that fire burns, a magnet attracts iron, bread satisfies hunger, water quenches one's thirst and decapitation produces death.(3)

This kind of proposition here differs from those based on sense perception, al-mahṣūsat - even though perception is necessary for both kinds. In perception there is no repetition and no 'hidden syllogism' (based on this repetition). Perception, also, is a judgment on an individual thing or case, while the empirically-tested proposition is a general judgment.(4)

We can say that this kind of proposition (i.e. the empirically-tested) is achieved after three stages: (a) the repeated perception of the same events regularly associated with each other; (b) the hidden syllogism which can be expressed as follows: if this regular course of associated events had been co-incidental or accidental, it would not have continued always or for the most part without deviation. Thus if it happened that the associated event was absent, the mind would regard this as unusual.(5) (c) Having the general judgment which describes or expresses the phenomenon which al-Ghazālī called 'regularity of habits' (iṭṭārād al-ʿadāt).(6)

The 'regularity of habits', according to al-Ghazālī differs from the theory of 'the efficient cause',(7) which he

---

(1) Miḥakk, p. 51.
(2) Miʿyar, pp.188-189 and Miḥakk, p.51.
(3) Miʿyar, p. 188.
(4) Miḥakk, p. 50.
(5) Miʿyar, p. 189.
(6) Miḥakk, p. 50. The main discussion of this idea (regularity of habits) and the principle of causality occurs in Al-Ghazālī, Tahafut al-falasifah, the problem 17, S.Dunia's edition, Cairo, 1955, pp. 225 – 237.
(7) A summary of this theory, as discussed by Ibn Sīnā, is to be found in M.E.Marmura, GDS, pp. 184-185.
criticised and denied in his work *Tahafut al-falāsifa*; (we shall return to this point in another section in this chapter\(^{(1)}\))

(2) The intuited premises (*al-ḥadsiyyāt*): they are subjective empirical propositions which one achieves as a result of one's personal experience in a specific field and the clarity and strength of one's mind.\(^{(2)}\) Such propositions are, mostly, achieved by scholars as a result of their long practice and experience in their sciences so that each of them had "... many propositions to which he cannot establish a proof, but which he cannot doubt nor can he share them with others by teaching, except by showing the student the course which he (the scholar) has pursued and followed."\(^{(3)}\) If the student has a sufficient degree of intelligence and clarity of mind and follows this course (which the scholar followed), then he will achieve such propositions and become sure of their certainty.

We can call the 'empirically-tested propositions' 'objective empiricals', because their certainty is common, and we can call the 'intuited propositions' as 'subjective empiricals' because they cannot be common, as we mentioned above.

(d) Premises known from innumerable narrators (*al-ma'li̇māt bi-al-tawātur*): they are propositions on which the mind judges that they are true according to the repetition of hearing them innumerable times, from people who have experienced them,\(^{(4)}\) like our knowledge that there is a city called Mecca, and a scholar-jurist called *al-Shafiʿī*...etc. These propositions cannot be considered as certain unless the number of the nar-

---

\(^{(1)}\) See below, pp. 97-98, 120-121.

\(^{(2)}\) *Miʿyar*, p. 191.

\(^{(3)}\) Ibid., p. 192.

\(^{(4)}\) *Miḥakk*, p. 52.
narrators is innumerable, and each of them must narrate his own direct experience and not what the others narrated to him. For instance, there should be innumerable persons who saw al-Shafi‘ī and reported that there was a jurist called al-Shafi‘ī. (1)

Al-Ghazālī considered each person's narration (for instance, seeing al-Shafi‘ī) as a sense experience (tajribah) and the innumerable narrations as the repetition of perception in similar terms as 'empirically-tested premises'. Thus the certainty of this kind of propositions (al-mutawatirāt) (2) was due to this innumerable repetition of experiences.

(e) Propositions known by an omitted middle (4): they are "inferences involving the presence of a middle term correctly drawn from premises known to be certain", (5) an example of this kind is: two is a third of six; this proposition if inferred as follows: "everything can be divided into three equal parts each part is a third;

six is divided by two into three equal parts; therefore two is a third of six". (6)

Propositions of this kind "do not need reflection" (7)

---

(1) Al-ustaṣafā, p.46 and Miḥakk, p.52.
(2) Al-ustaṣafā, p.46 and Miḥakk, p.52.
(3) It is strange that al-Ghazālī did not mention this kind of proposition (al-mutawatirāt) in Mi‘yār while it is mentioned by Ibn Sīnā, in al-Isharat vol.1, p. 349, whom al-Ghazālī followed in the classification of the premises, while it is mentioned in al-Ghazālī's other books on logic: Maqāsid, pp.102-103 (written before Mi‘yār), Miḥakk, p.52 and al-Mustaṣafā, p.46 (both are written after Mi‘yār). I think the possible explanation is that he forgot to add this kind while writing the first copy of Mi‘yār, which, al-Ghazālī said at the end of Miḥakk "needs more correction (tahdhib) and checking (taqull)" (p. 133). It may be that this copy is what we have in our hands and it was copied and circulated without the needed corrections.
(4) This kind is not mentioned in Miḥakk and al-Mustaṣafā; it may be that because it is easily reduced to the "pure rational premises".
(5) M.E. Marmura, GDS, p. 194. and Mi‘yār p. 192.
(6) Ibid., p. 192.
(7) Ibid., p. 193.
to know them, and so this kind is similar to the rational primaries, (1) although it can be considered as rational but not primary.

Al-Ghazālī maintained that there was another kind of proposition which could be added to this part (the certain-true premises). It was the conclusions which are achieved by using the five previous kinds in a perfect syllogism. (2)

These five kinds of propositions can be classified into two categories: rational and empirical. The 'pure rational primaries' and the 'propositions known by an omitted middle' belong to the rational premises. The 'perceptuals', the empirical premises (the 'empirically-tested' and the 'intuited') and the 'premises known from innumerable narrators' belong to the empirical premises.

(ii) The non-certain premises are divided into two kinds; Al-Ghazālī used 'suitability for jurisprudence' as a 'difference,' (3) to determine these two kinds which are:

(a) Propositions suitable to be premises in jurisprudence discussions but not in rational discussions ('aqliyyāt) i.e. philosophy and theology (kalām). This kind is sub-divided into three:

(i) Well-known premises (mashhūrāt): they are "nearly true but have the possibility of being false" (4), and so this kind is not suitable for achieving certainty if used as premises in perfect syllogisms. One judges that the

---

(1) Ibid., p. 193.
(2) Ibid., p. 193.
(3) This, I think, reflects the interest of al-Ghazālī in applying logic to jurisprudence.
(4) Mi'yar, p. 197.
possibility of their (the well-known premises) trueness is more than their falsity for several reasons outside mind and sensation, (1) because if we let mind and sensation, uninfluenced by any other factors, judge the trueness or falsity of the propositions of this kind, they will not be able to judge whether these propositions are true or false. (2)

Examples of this kind are like: spreading the greeting "peace be with you" is good, telling the truth is good, being on friendly terms with relatives is good, licentiousness of women is wicked and ingratitude in return for a favour is bad. (3)

The reasons which make a person judge that the possibility of their trueness is more than their falsity can be due to human nature or the individuals' culture and the dominant culture in the society. (4)

Because this kind of propositions cannot be distinguished easily from the 'rational primaries', al-Ghazālī introduced a criterion to distinguish between these two kinds. He said: imagine that you came to this life as an adult with a complete mind, you did not acquire any experience from society and received no education, then examine the proposition you have. If you have any doubt in its truth, then it will not be a 'rational primary' one. (5)

This criterion of al-Ghazālī is, theoretically, good but it is difficult to apply. It is not easy for a person to judge a proposition in the condition described above, and,

(1) Ibid., p. 193 and Miḥakkk, p. 56.
(2) Miʿyar, p. 193 and Miḥakkk, p. 56.
(3) Miʿyar, 193.
(4) Al-Ghazālī listed the reasons for such judgement in five causes, Miʿyar, pp. 193-197.
(5) Ibid., p. 197.
therefore, the results we achieve from applying this criterion will differ from one person to another.

(ii) Those which are acceptable (al-maqbūlāt): they are propositions in which we believe because we trusted the group that reported them. This group may be one person known to be just and scholarly or several persons, but less than the degree of 'tawātur'. Examples of this kind are: what we have accepted from our parents, our teachers and our imams and still believe in, or isolated reports (āhād) of a tradition of the Prophet Muḥammad. (1)

"The degrees of probability (zann) in this are innumerable". (2)

(iii) Probables (al-maznūnāt): they are propositions which we assent to and consider as true - in spite of the feeling that their contrary may be true - not because they are true in themselves but because of our tendency to believe in them. (3) For example: if we say: a person leaves his home late at night and we do not know his purpose, we find the mind tends to judge that this person does so for bad purposes. (4)

The well-known premises and the acceptable premises can be considered as probable premises when we feel that their contraries may be true. (5)

(b) The second kind of the 'non-certain premises' is that which does not produce either certain knowledge or probability but falsity. It is sub-divided into three:

(i) Purely imaginary (al-wahmiyyat al-ṣirfah): they

---

(1) Mihakk, pp. 57-58; Mi'yār, pp. 1970198; al-Mustasfā, p.49.
(2) Mi'yār, p. 198.
(3) Ibid., p. 198.
(4) Ibid., p. 198.
(5) Ibid., p. 198.
are propositions in which we judge those things which are not subject to perception in the same way which we used for those which were subject to perception; and so they seem to the person as if they are primary propositions (awwaliyyāt).

An example of this kind is the judgement of our imagination that it is impossible to find an existent whose place cannot be pointed to and which is not in contact with or separate from the world. Another example is the distaste of person's nature for the saying: "there is no void or matter outside the world", and his judgement that this is impossible.

These judgements are affected by imagination. Such judgements are true for things perceptible through the senses (al-mahsūsāt), but for rational matters (al-'aqliyyāt), these judgements are not true and are not trustworthy at all. The way to show their error is to use demonstration, in which the mind uses certain propositions which are true for things perceptible through the senses and are achieved by the help of the imagination and makes them premises in perfect syllogisms and so draws certain conclusions. The person should accept such conclusions even though his nature has a distaste for them.

This kind of propositions causes a lot of errors in rational discussions because some scholars consider them as certain premises.

(1) Ibid., p. 199.
(2) Mihakk, p. 53.
(3) Mi'yar, p. 199.
(4) Mihakk, p. 53.
(5) Mihakk, p. 53.
(6) Such propositions may be either perceptuals or empiricals.
(7) Mi'yar, p. 199; Mihakk, p. 55.
(8) Mihakk, pp. 54-55.
(ii) What is similar to the probable or well-known premises (ma yushbih al-maznūnāt aw al-mashhūrat) : they are propositions to which the mind tends to assent, but if they are examined their falsity will be clear and this tendency of the mind will abate.

The examples of this kind are like the statements which people have heard repeatedly until these statements have become familiar to them, but if the person examines them, he will find that they are false. For instance, if a group of people hear repeatedly that the blonde with blue eyes is unfaithful, then they see a person like this, and their psychological tendency is to judge that he is unfaithful more than he is trustworthy, but all this when examined is mere imagination. (1)

Of this kind, also, is the tendency to like or dislike a thing just because its name is in common with other liked or disliked things. With regard to this kind of premise, al-Ghazālī commented that although this kind of premise was the meanest, it motivated people in most of their actions ... so that if it was said that arithmetic and logic were among the sciences of the atheistic philosophers, the people of religion (ahl al-dīn) would have an aversion to arithmetic and logic (2) despite the fact that the sciences of arithmetic and logic were not in themselves concerned with the atheism of those philosophers.

(iii) Fallacies (aghāliṭ) : they are false propositions. Their falsity can be traceable to two kinds of mistakes: Verbal mistakes like the mistakes of grammar which change the meaning of a sentence; and semantic mistakes like

(1) Mi‘yar, p. 200.
(2) Ibid., p. 200.
the mistakes which happen when we miss the intended meaning of a word which has two or more meanings.\(^{(1)}\)

All the kinds of premises are summarised in the following table:

\begin{table}
\end{table}

\(^{(1)}\) Ibid., p. 201.
Premises of syllogism.

Certain.

1. Pure rational primaries
2. Perceptuals (empirically tested)
3. Empiricals (intuited)
4. Known from innumerable narrators.
5. Known by an omitted middle.

Non-certain.

Suitable for jurisprudence
1. Well-known
2. Acceptables
3. Probables

Non-suitable for jurisprudence (produce false knowledge)
1. Purely imaginary
2. Similar to opinion or well-known premises
3. Fallacies
5. The epistemological bases of certainty:

Al-Ghazālī sets out the problem of the capability of achieving certain knowledge in the following way.

Suppose we agreed that there must be primary-certain premises, then we have to ask whether these premises are acquired or innate and existing in our minds since the time of our creation. If they are acquired, they must be acquired by the help of previous knowledge, and this knowledge by previous knowledge. This is continuous ad infinitum.

If they exist in our minds since the time of our creation, then how are they within us without our realising them? And if they were not within us from the beginning and after that come to us, then how did this knowledge occur without acquisition?(1)

This is, in fact, a quest for the epistemological bases of certain knowledge. Al-Ghazālī's solution introduced a new epistemological theory, even though several elements of it are found among the ideas of the previous philosophers, and theologians (mutakallimin).(2)

In what follows, al-Ghazālī's theory will be briefly presented in order to see how it explains certainty as determined by him.

(a) The means of knowledge:

Al-Ghazālī set forth the means of achieving

---

(1) Mi'yar, pp. 230-231.
(2) Al-Ghazālī followed Aristotle in 'demonstration' and Ibn Sīna in the 'certain premises', as already mentioned. Al-Ghazālī was affected, in general, by the Ash'arite school. Here he used the idea that God is the only free agent when he considers Him the real source of knowledge. Also, in his definition of knowledge, he was affected by al-Baqillānī's definition, who was the teacher of his teacher, al-Juwaynī. See more details in: W.Montgomery Watt, "The logical Basis of Early Kalam", The Islamic Quarterly, vol. VI, 1961, pp. 3-5.
knowledge using an analytical method. He analyzed knowledge into conceptions (taṣwurāt) and assents (taṣdīqāt). In order to know the concept of a thing, we should know its definition. In order to understand this definition, we should know the concepts of its parts. In order to know the concepts of these parts, we should know their definitions. This cannot continue ad infinitum, but we should stop at "primaries known by senses, either external or internal perception". (1)

Assents are achieved by demonstration in which we use other propositions. These propositions also are derived from others and so on until we reach primary propositions to which we assent without proof (2) i.e. without acquisition.

How and when are these primary propositions within us? Al-Ghazālī's answer is that this knowledge (primary propositions) is not actually set in our minds in every case. However, when the nature of mind is complete, this knowledge is potential not actual, (3) i.e. the person has the potentiality of the knowledge but the actuality of this potential knowledge is only realised in our minds when we direct our mental activity towards it.

The potential existence of this knowledge in mind does not mean that the knowledge is latent in mind and that the mind contains this knowledge without any help from the senses. (4) Al-Ghazālī implies that the mind of the newly-born is empty, contrary to what the rationalists, in general advocate.

The means of achieving knowledge, according to

(1) Mi‘yār, p. 230.
(2) Ibid., p. 230.
(3) Ibid., p. 231.
(4) See below pp. 85-86 , to see the role of senses in achieving knowledge.
are: the senses, which are two parts, external and internal; and the mind which receives what the senses bring, and exercises on this sensory data different activities according to its difference faculties which are:

(a) the faculty of imagination and perception.
(b) the faculty of abstraction.
(c) the faculty of thinking.
(d) the faculty of judgement. (1)

(b) How does knowledge happen?

Man is born provided with senses and mind. In the beginning the senses are the stronger and their activities are more obvious. Then the activities of mind begin to appear gradually, first with the faculty of imagination and finally the faculty of judgement.

The activity of the latter faculty does not eliminate the former's.

The senses pass on images of perceptible things to the mind which preserves and perceives these images by the help of the faculty of imagination and perception. (2) When this faculty has a lot of different images of things, the faculty of abstraction begins its activity on these images. It distinguishes, in these images, between those which are similar in some qualities and different in others. It begins from the general qualities to the less general. For example this faculty examines the images of stone, tree and animal and finds that they all are the same in having a body and that they are different in animality. Then it makes the term 'body' as a general name and understands the absolute body; it does the

(1) Mi'yar, p. 231. These names were extracted from al-Ghazālī's description of these faculties.
(2) Ibid., p. 233.
same with term 'animal'...and so on.\(^{(1)}\)

This faculty, also, distinguishes between the essential and the non-essential, and the general and the specific. In the qualities of the general names, it knows, for instance that 'having body' is an essential quality of 'animal', (because if this quality is non-existent then animal will be non-existent), but being white is not an essential one... In this way the concepts of genus and species, and concepts in general are realised in the mind.\(^{(2)}\)

After that comes the role of the faculty of thinking which synthesizes and analyses propositions. It brings into relation some of the concepts (which the previous faculty abstracted) with others to make propositions. For instance, it brings into relation the concept 'eternal' with the concept 'created' and synthesizes the propositions: "the eternal is created" and "the eternal is not created".\(^{(3)}\) This faculty can analyse propositions into their terms, and comprehend the relation between the terms.\(^{(4)}\)

Finally, comes the faculty of judgement which examines the relations between the terms of the propositions, which were made by the previous faculty, and then gives judgements on them: either affirmation or negation. For instance, it judges that the relation between 'the eternal' and 'the created' is a negative one, and, therefore, the proposition: 'the eternal is created' is false and the proposition: 'the eternal is not created' is true.\(^{(5)}\)

The judgements of this faculty are of different kinds.

\(^{(1)}\) Ibid., p. 234.
\(^{(2)}\) Ibid., p. 234.
\(^{(3)}\) Ibid., p. 231.
\(^{(4)}\) Ibid., p. 231.
\(^{(5)}\) Ibid., p. 231.
(c) The kinds of judgements:

The faculty of judgement, in the mind, issues different kinds of judgements according to two considerations:

The first consideration is the need of a middle term. From this standpoint, we have two kinds of judgements:

(i) primary judgements: they are judgements which this faculty makes on two terms (concepts) without the need of a middle term to combine them. For instance, if the 'faculty of thinking' brings into relation the term 'man' with the term 'animal', then the 'faculty of judgement' can make the judgement: man is an animal, without the need of a third term, to combine the terms 'man' and 'animal'. The same can be said in the judgement: the whole thing is bigger than its part.\(^1\)

(ii) Non-primary judgements: they are judgements which the faculty of judgement makes on two terms using a middle term to help it in realising the exact relation between them. For instance, the 'faculty of judgement' cannot make a judgement on the relation between the 'world' and 'originated' directly, and so it looks for a middle term to combine them.

It finds that the world "is not separated from originated-things and so does not precede them, and what does not precede originated-things is originated".\(^2\) Then it makes the judgement: the world is originated.

It is clear that this is a syllogism in which 'world' and 'originated' are, respectively, the minor and major terms, and 'preceding originated-things' is the middle term which the faculty of judgement looked for.

---

\(^1\) Ibid., p. 230.

\(^2\) Ibid., p. 231.
The second consideration is the predominant element in the judgement: from this standpoint we have two kinds of judgements:

(i) Sensory judgements: they are judgements made by the faculty of judgement in which the predominant element is perception or empirical experience. This kind is subdivided into two: (a) perceptual judgements which are made as a direct result of perception. For example, if we see the sun and make the judgement: 'the sun is spherical', then it is clear that this judgement is a result of the contact between the sense of sight and the sensible thing (the sun). Thus, it is a perceptual judgement, even though it was made by one of the mind's faculties, (1) (i.e. the faculty of judgement).
(b) imaginary judgements: they are issued by the faculty of judgement on a certain thing under the influence of the images of things perceptible through the senses, which are preserved in the faculty of imagination. For instance, by perception we see that the agent of every originated thing is a body. When some people wanted to investigate the agent of the world, they would say it is a body influenced by their perceptual experience and the images preserved in the faculty of imagination. Thus the predominant element in this kind of judgement is sensation. (2)

(ii) Mental judgements: they are judgements made by the faculty of judgement on the relations between the different concepts and are a direct result of the activities of this faculty and the faculty of thinking.

(1) Ibid., p. 62; 232-233.
(2) Ibid., pp. 63-64.
Judgements may be classified into two groups: sensory and mental. Each of these groups has two elements. Thus there are primary-sensory judgements and non-primary sensory judgements. Similarly, there are primary-mental judgements and non-primary mental judgements.

(d) Kinds of judgements involved in the certain premises:

Judgements can be applied to the certain premises as follows:

(i) perceptuals: they involve primary-sensory judgements, because they come as result of direct contact between senses and things.

(ii) empiricals: they involve non-primary-sensory judgements, because they come as result of the repetition of perception many times, which is followed by the judgements. So the causes of judgement here are two things: perception and repetition. Thus these judgements are sensory and non-primary.

This analysis also applies to the empirically-tested and the intuited premises.

(iii) the propositions known from innumerable narrators: they involve non-primary-sensory judgements, because they come as a result of innumerable repetitions of narrations, each of which is a direct perception. So, the causes of judgement here – like the empiricals – are: perception and repetition.

(iv) pure rational primaries: they are primary-

---

(1) See their exposition and the examples above, p. 72.
(2) See their exposition and the examples above, pp. 72-74.
(3) See their exposition and the examples above, pp. 74-75.
(4) See their exposition and the examples above, pp. 71-72.
primary-mental judgements, because the mind makes them directly when it considers their terms, without the need of 'a middle term'.

(v) The propositions known by an omitted middle: (1) they are non-primary-mental judgements because the faculty of judgement is not able to make any judgement of them without the help of the middle term which combines the two parts of the proposition.

All this is summarised in the following table:

---

(1) See their exposition and the examples above, pp. 75-76.
Kinds of judgements involved in certain premises.

- Mental judgements.
  - Primary.
  - Non-primary.
    - Pure - rational primaries.
    - Known by an omitted middle.

- Sensory judgements.
  - Primary.
  - Non-primary.
    - Perceptuals.
    - Empiricals.
      - Known from innumerable narrators.
The source of knowledge and certainty:

Knowledge, as already mentioned, is the engraving in the mind of a model congruous with the known subject. Certain knowledge is that which is completely congruous with the external objects and which is associated with a psychological state in which the person feels that this congruity is completely right. I has already been shown how knowledge happens in the mind by the two main means of knowledge: the senses and the mind which has different faculties. So that it can be said that without these two means, no knowledge can happen. Although this is true, it does not mean, according to al-Ghazālī, that they (the means) act independently so that knowledge may happen as a result of their activity. Al-Ghazālī believes, in the matter of knowledge - as in the order of nature - that mind and senses do not act independently without the effect of God and His will. Therefore, knowledge happens in one's mind through God when these means perform their activities. This is similar to what happens in the order of nature where fire, for instance, is not the cause of burning, but God's will, "the sole agent in the universe", is the real agent of burning.

This explanation applies to certain knowledge, i.e. God is He Who brings about certainty in our minds when they perform their activities concerning certain knowledge - as described above.

---

(1) See above, p. 62.
(3) Cf. above pp. 85–86.
(5) Cf. above pp. 85–86.
If we try to see what are the mental activities which if performed, can result, with the association of God's will, -according to al-Ghazālī - in certain knowledge, we find that:

(a) in the perceptual premises it is sensation, (b) in the empirical premises and those known from innumerable narrators, it is the regular repetition of the sensations, (c) in the pure rational primaries, it is the clearness of the congruity of these propositions to the external world which the mind realises directly and easily, (d) and in the propositions known by an omitted middle, it is the congruity of them to the external world which the mind realises easily as if it were a direct realisation while, in fact, it is indirect.

All these activities are required for certain knowledge to be established in the mind, but al-Ghazālī could not consider them as the real source of certainty; because it was God Who created in us knowledge and the feeling and awareness of its certainty, but He only does this when all these activities (of the senses and the mind) are performed.

---

(1) Cf. above, p. 72.
(2) Cf. above, pp. 72-75.
(3) Cf. above, pp. 71-72.
(4) Cf. above, pp. 75-76.
6. Natural sciences and certainty:

Al-Ghazālī, as already mentioned, denies causality in the course of nature. Although the origin of this idea is found in the Ash'arite school, al-Ghazālī was the first to "offer a critical analysis of causality"(1), and "his attack on the causal principle in al-Tahāfut was the acutest and most devastating attack to which this principle was subjected in the course of Islamic history"(2). Thus he rejected the main basis of certainty in natural sciences. For these sciences, as understood by Aristotle and the Islamic philosophers, rest "on the theory of essential efficient causes (in nature) and functions in terms of it"(3).

Al-Ghazālī replaced the principle of causality with the principle of 'the regularity of habits' (iṭṭirād al-ʿādāt) and 'the habitual practice of God' (sunnat Allah), but, in spite of that, he keeps the Aristotelian demonstration as the main method of achieving new certain knowledge in natural sciences(4).

The questions raised here are, always bearing in mind his theological rejection of the principles of causality: Does al-Ghazālī consider the propositions of natural sciences as completely certain? And if the answer is in the affirmative, then we have to ask: on what basis does this certainty rest? And, what is the relation between this basis and his theory of knowledge and certainty?

Al-Ghazālī mentioned these problems incidentally in his work: Miʿyār al-ʿilm from which we can extract the following exposition of this matter.

(2) Ibid., p.15.
(3) M.E.Marmura, GDS, p. 183.
(4) See above, pp. 69-70.
(a) Kinds of propositions in natural sciences:

The propositions of natural sciences can be divided, according to al-Ghazālī, into two kinds:

(i) Propositions that describe natural existents in the world like the sun, the moon, mountains, rivers...etc. Certainty in such propositions depend on the subject they describe: if it is an unchangeable and external subject, then the propositions which describe it will be permanently certain. For instance, the proposition: the world "is created and has a creator" (1) is of this kind, because "it is impossible to have a time in which we judge that the world is eternal (qad-Im)" (2). However if the subject is changeable - like the things in the sub-lunar world - then the propositions which describe it will not be certain. For instance: the height of a mountain or the depth of a sea (3). Such propositions, even though they are not certain, in the complete sense, are nearly or temporarily certain.

Also the propositions, which are derived from this kind of proposition, by using the latter as premises in valid syllogisms, will be the same in certainty as the premises. If we say, for instance; "this mountain is so and so high"; and "every mountain which has such and such a height is so and so" (4), the conclusion which can be derived from such a syllogism will not be completely certain because the premise is not completely certain. The reason for this is that one can imagine a change in the mountain's height. (5)

---

(1) Mi'yar, p. 255.
(2) Ibid., p. 255.
(3) Ibid., p. 255.
(4) Ibid., p. 255.
(5) Ibid., p. 255.
(ii) Propositions that describe repeated events.

This can be divided into two parts:

(a) Empirically-tested premises (al-mujarrabat): they are propositions which describe events that have been perceived innumerable times, (as already explained)\(^1\), like the propositions: a magnet attracts iron, the lunar eclipse occurs at the time of the earth’s intervention between it and the sun\(^2\). Such propositions and those which are derived from them, by using them as premises in valid syllogisms, are considered completely certain.

(b) Propositions that describe events which occur mostly or frequently, this kind is not completely certain but nearly certain in general, even though some of them express higher degrees of certainty than others. There is something certain in such propositions, namely that we are certain that they are expressed about events which occur frequently and so we are certain that their occurrence in the future will be usual, for example: if a healthy man and a young woman are married, then it is certain that it is very probable – as a result of this marriage – that they will have a child, but the existence of the child is subject to probability and not an established truth.

(b) The foundations of certainty in the natural sciences:

It is clear now, from what has been said here, that al-Ghazālī did not use the 'principle of causality' as a basis of certainty in the natural sciences, but he used other ideas,

---

\(^{1}\) See above, pp. 72-73.

\(^{2}\) Mi’yār, p. 344.

\(^{3}\) Ibid., p. 256.
as the foundations of certainty in these sciences. These ideas are:

i. The unchangeability of the subject.

ii. The regularity of habits or the habitual practice (sunnah) of God.

iii. Demonstration (i.e. the syllogism with certain premises).

By using these ideas to justify certainty in the natural sciences, al-Ghazālī diverges from the ideas of Aristotle and the Muslim peripatetics in this respect, especially Ibn Sīnā(1), in spite of his acceptance of demonstration, as set down by Aristotle and taught by Ibn Sīnā(2). In fact, al-Ghazālī gave a new explanation of how some of the premises of demonstration derive their certainty.(3)

We are going to show, in what follows, this new explanation and its relation with al-Ghazālī's occasionalist(4) theory.

It is appropriate to begin with a brief summary of al-Ghazālī's occasionalist theory, of which the following quotation is enough for our purpose:

"Nature proceeds in an orderly fashion and this fact enables us to obtain certain knowledge about it. But nature's uniformity is not due to any causal qualities inherent in natural things.

(1) Cf.M.E. Marmura, GDS, pp. 185-186.

(2) Ibn Sīnā devoted a whole volume to expound demonstration. See: Ibn Sīnā, Al-Shifa'; Logic V; Demonstration, ed. A.E. 'Afīfī, revised by I. Madkur, Cairo, 1956.

(3) M.E. Marmura, GDS, p. 193.

(4) "Occasionalism can be defined as the belief in the exclusive efficacy of God, of whose direct intervention the events of nature are alleged to be the overt manifestation or 'occasion'." Majīd Fakhry, Islamic Occasionalism, p. 9.
The uniformity is decreed by the divine will 'that can undergo neither substitution nor change'.

This uniformity in the course of nature which al-Chazālī called: 'the regularity of habits' or 'the habitual practice of God' is the basis on which certainty in the empirical premises (al-mujarrabāt) rests. This regularity is a reflection of what happens in reality, and since certainty is the complete congruity between what is in mind and reality, therefore, the empirical premises, which express this uniformity or regularity in reality, should be regarded as certain premises.

The second kind of the premises used in the natural sciences, (as illustrated in the previous paragraph) is those that describe events which occur frequently. This kind - as already mentioned - is not certain knowledge but probable, and there are different degrees of probability in it. The certainty found in this kind, which is that its propositions express events of frequent occurrence, can be reduced easily to the principle of 'the regularity of habits'.

The third kind of propositions used in the natural sciences is that which describes unchangeable existents. The basis of certainty in this kind is the fixed nature of its subject. Its description, which is congruous with reality, is unchangeable, i.e. certain knowledge.

We should notice here that such propositions, according to al-Ghazālī, describe only things which are not subject to change, and if such things are found, it will be only in

(1) M.E.Marmura, GDS, p. 196.
(2) See above, p.96.
(3) See the example of this kind above, p.96.
the _supra_-lunar part of the world. (1)

It is clear, from what has been said, that the principle of 'the regularity of habits' is the common element in his occasionalist theory and the foundation of certainty in the natural sciences.

(c) Induction and science: induction (istiqrā'), as defined by al-Ghazālī, is "the examination of many particulars which come under a general concept, so that if we find a judgement in these particulars, then we apply the same judgement to the general." (2) Al-Ghazālī introduced examples of induction from the fields of: philosophy ('aqlīyyāt) (3), jurisprudence (4), and the natural sciences. (5)

Induction is divided into two kinds: complete and incomplete. In complete induction, we examine all the particulars under a general concept and if we find the same judgement in all the particulars then we make the general judgement. This general judgement is certain (6), because it is applicable to every particular which comes under the general concept. In incomplete induction, we make the general judgement after examining many particulars but not all of them; this kind of judgement is not certain, it is probable (zann) (7). For example, if one makes the judgement: "every animal moves its lower jaw during mastication", (8) after examining many kinds of animals, but not all kinds, then it is possible that there is an

---

(1) Mi'yar, p. 257.
(2) Ibid., p. 160.
(3) Ibid., pp. 160-161.
(4) Ibid., p. 162.
(5) Ibid., pp. 163-164.
(6) Ibid., p. 163.
(7) Ibid., p. 163.
(8) Ibid., p. 163.
animal, which is, in fact, the crocodile, that moves its upper jaw during mastication. So when there is a contrast between some of the particulars, then the general judgement, as the one mentioned above, will not be certain, because it does not apply to all the particulars.

In these probable general judgements, there are degrees of plausibility, which are proportioned to the number of the particulars that have been examined. Al-Ghazālī applied this principle, which is called nowadays "The principle of instance confirmation", (1), to jurisprudence. For instance, if we have two different judgements drawn by induction, in order to choose the more likely of them, we can see the particular cases from which each judgement was drawn, then the one with greater number of cases is the stronger and the more likely (2).

From a probable general judgement, which we achieve by using incomplete induction, we can derive new knowledge by using it as a minor premise in a valid syllogism where we can transfer a judgement from its predicate (i.e. the predicate of the general judgement) to its subject, but this new knowledge will be probable too. For example: if we have, from examining the kinds of movements, like walking, swimming, flying... etc, the judgement:

\[ \text{every movement is in time; and we add to it the} \]
\[ \text{proposition: everything in time is created (muhdath);} \]
\[ \text{we can derive the conclusion: every movement is created. (3)} \]

---

(2) Al-Ghazālī gave a detailed example from jurisprudence; Mi‘yar, p. 162.
(3) Ibid., pp. 163-164.
This is the way by which we can derive new knowledge (1) from the general judgements achieved by induction, either complete or incomplete. However, if we want to infer from the general judgement — achieved by induction — a judgement on one of the particulars, then the result of this inference is, either useless or unreliable, because if the induction is complete, then this judgement we are going to infer is already known to us during the process of the examination of the particulars, and so there is no new knowledge in this kind of inference. A similar thing could be said when the induction is incomplete and the particular we are going to judge had already been examined. However, if this particular had not been examined, then how can we know that the general judgement (which we have from incomplete induction) will apply to this unexamined particular? It is possible that this particular is an exception, as is the case in the example of crocodile, and so the result of this judgement is unreliable (2).

From what has been said here, it can be said that induction, according to al-Ghazālī, is a method used in natural sciences beside other kinds of knowledge, as mentioned above (3), and it is only complete induction that can provide us with certain knowledge (4), while incomplete induction provides us with probable knowledge.

(d) Certainty in mathematics:

Al-Ghazālī treated the question of certainty in math-

(1) This new knowledge, as far as certainty is concerned, will be similar to the premises from which it is derived.
(2) Mi'yar, pp. 163-164.
(3) See above, p.
(4) This kind of knowledge can be reduced to the empirically-tested premises because the examination of the particulars is similar, to some extent, to repetition of perception.
mathematics very briefly. He tells us that mathematics: arithmetic and geometry, are for the most part, certain (1). This certainty is due to their unchangeable subject which is intelligible but can be imagined as well (2). It is due, also, to its method of reasoning which can be reduced to a series of valid syllogisms (3).

It can be said, according to al-Ghazālī, that the kinds of premises which are suitable to be used in mathematics are: the pure rational primaries, the perceptuals and those known by an omitted middle.

7. Kalām and certainty:
   (a) The aim of Kalām:

   The aim of kalām, as al-Ghazālī describes it, is "merely to preserve the creed of orthodoxy and to defend it against the deviations of heretics" (4), Kalām "acts like a protective troop at the pilgrim road" (5).

   The Islamic theologians (al-mutakallimūn) used two ways to realise this aim: the first is the refutation of the opponents of the creed and their criticisms; the second is their attempt to prove the articles of faith rationally.

   (b) The methods of Kalām before al-Ghazālī:

   The Islamic theologians developed two methods, which suit the two ways, mentioned above:

   * The first method is dialectic (al-Jadal) (6):

   This method is used for the refutation of those who

-----

(1) Mi‘yar, p. 247.
(2) Ibid., p. 247.
(3) This can be understood easily from what he say, see: Ibid., p. 247.
(4) Al-Ghazālī, al-Mungidh, (E.Tr.), p. 27.
(6) J. Van Ess, LSIT, p. 25.
criticise religion. It can be described as a destructive or negative method, because, in jadal "one argues according to one's adversary"(1). There is a thesis which the mutakallim wants to falsify and to demonstrate its error. In this method "he does not develop a truth because of its internal evidence, but because of the untenability of the contrary"(2) thesis.

Therefore, this method is not expected to achieve positive certainty - except that which comes incidentally. Thus it is not suitable for positive deduction.(3)

The opponent, usually, is either a non-Muslim, i.e. Jew, Christian or Manichean, or a Muslim theologian belonging to another theological sect.

The mutakallimun developed several ways of jadal to refute their opponents. Al-Farabi, in his work Iḥṣāʾal-ʿUlūm, mentions the importantones(4):

(i) Proving that the creed is true and genuine and so the thesis of the opponent - which contradicts the creed or some of its articles - will be false.

The truth and the genuineness of the creed is proved in this way - by proving that the person who brings it is a messenger of God. One should believe that this person is really a messenger of God if it is proved that he performed miracles or if veracious people who preceded him(5) certify that he is a true messenger of God or by both ways together.(6)

---

(1) Ibid., p. 25.
(2) Ibid., p. 23.
(3) Ibid., p. 25.
(5) It is probable that "the veracious people...him" here, refer to preceding prophets who - according to Muslim beliefs - announced the coming of Muhammad as a Messenger of God.
(6) Ibid., p. 110.
(ii) Proving that the creed is true and genuine by showing that the primary-rational propositions (al-ma'qūlāt), those based on sense-perception (al-maḥṣūsāt) and the well-known propositions (al-maʃhūrāt), agree with the creed and that they do not contradict the creed but support it.\(^{(1)}\)

(iii) To search for hideous things in other creeds so that if an adherent of another creed wants to censure the creed (of the mutakallim) for having a hideous thing, then the mutakallim will refute him by mentioning to him hideous things in his creed.\(^{(2)}\)

(iv) To amend the creed to others and to eliminate dubious matters from it, by using whatever arguments may come, even if they imply fallacy.\(^{(3)}\)

(v) The mutakallimūn, sometimes, used ways to force their opponents to be silent even if this silence was not a result of contentment but a result of either shyness or the inability to express themselves effectively or fear of being harmed.\(^{(4)}\).

* The second method is inference or research (al-baḥth)\(^{(5)}\).

This method aims to prove the principles of the creed by rational reasoning. It can be described as a positive method. Thus this method differs from the dialectic, al-jadal, but it agrees with jadal in the ultimate aim which is the preservation and the defence of the creed.

---

(1) Ibid., pp. 110-111.
(2) Ibid., p. 112.
(3) Ibid., p. 113.
(4) Ibid., p.112. The interesting point in al-Fārābī's exposition of the methods of kalam here is that he is talking about methods of defending and supporting religions, al-milal, in general and not Islam only, and that he is considering kalam, as a discipline ('ilm) which is not confined to Islam.
(5) J. van Ess, LSIT, p.25.
The mutakallimûn, in this method, use certain kinds of inference. The important ones are:

(i) The analogy of the hidden (or imperceptible) with the present (or apperceptible), (gīyās al-ghā'ib 'alā al-shāhid): this is one of the important arguments used by the mutakallimûn. In it we judge a hidden thing, (al-ghā'ib), by the same judgment we judged the present thing (al-shāhid) because they are common in a certain quality or qualities(1). The mutakallimûn disagree about determining the qualities by which, if found in the shāhid and the ghā'ib, we can apply the judgement of the shāhid to the ghā'ib, but most of them agree on the reason ('illah) and the indication (dalālah)(2). The example of the common cause is that: we see that all created and made things need a maker, (sānî), and so the created world needs a creator(3), (we have to prove here that the world is created). The example of the common indication is that: the creation of things we see in a destined and accurate manner is an indication of the power, (qudrah), will, (irādah) and knowledge ('ilm) of the creator, and so we can infer from the destination, the accuracy and the creation of the world that its creator (i.e. God) has power, will and knowledge. (4)

(ii) Investigation and disjunction (al-sabr wa al-taqsīm): this is, in fact, the disjunctive syllogism.

---
(1) Al-Ghazâlî, Mi'yar, pp.165-166; Alî S.al-Nashshâr, Manâhij al-Bâthî, p. 107.
(3) Al-Ghazâlî, Mi'yar, p.165; 'Abd al-Jâbâr, al-Muḥît, p.166.
(4) Ibid., pp. 166-167.
In this argument one has to investigate all the possibilities of a matter then one can infer from the denial of any number of these possibilities, that truth is restricted to the others, provided that he enumerated all the possibilities. (1)

The mutakallimun distinguished between two types in this argument:

(a) The exclusive (al-munhasir): in it all the existed possibilities are dealt with. This can be in the form:

A is either b or c or d... or n,
but A is not c or d... or n,
therefore A is b.

The well-known example of this type has two possibilities. It is the following:

The world is either eternal or created; if it is not eternal (which has to be proven), then it must be created. (2)

By this type of argument (i.e. the exclusive) we can obtain certain conclusions (3).

(b) The inclusive (al-muntashir): in it one or more of the possibilities are not taken into account, and so the investigation (al-sabr) is incomplete.

By this type we cannot obtain certain conclusions, but only probable (zann) (4)

(iii) The deduction of conclusions from premises, (intāj al-muqādimāt li al-natā'ij): in this type there is one premise from which the conclusion is derived, this kind can be easily reduced to the categorial syllogism, and so it can be

(2) Al-Ghazali, Mi'yar, p. 156.
(3) A.S. al-Nashshar, Manāhij, p. 111.
(4) Ibid., p. 111; J. van Ess, LSIT, p. 41, note 106.
considered as an enthymeme. Al-Ghazālī considered the capability of reducing this kind of argument to a two premise-syllogism as the criterion for its validity. The mutakallimūn before al-Ghazālī used this kind of argument without bothering or thinking of this reduction depending only on common sense as a criterion for the validity of the arguments.

(c) The methods of kālam, before al-Ghazālī, and certainty:

The aim of the method of dialectic (jadal), as already mentioned is only the refutation of one’s opponent’s thesis. Achieving certainty here, is not the aim of the mutakallim.

The method which aims to achieve certainty in kālam is research, al-ḥāth, or inference.

In the first kind of baḥth or inference (which is qiyās al-gha’ib ‘alā al-shāhid), the mutakallimūn consider the conclusions they reach as certain, provided that the conditions of the common quality are fulfilled, although there are disagreements among them (i.e. the mutakallimūn) about the determination of the common quality - as already mentioned.

In the second kind of baḥth (i.e., al-sabr wa al-taqsīm) if the investigation is exclusive then the conclusions will be certain, but if the investigation is inclusive then the conclusions will not be certain but probable, as already mentioned.

The mutakallimūn considered the conclusions they achieve by using the third kind (i.e., intāj al-mugaddimāt li al-nata’īj) as certain. There is no general rule to be a criterion to help us in examining the certainty of the conclusions.

---

(1) "An enthymeme is a syllogism abridged in expression by the omission of one of the constituent propositions". J. Welton, A Manual of Logic, vol. 1, London, 1904, p. 387.
(2) Ibid., p. 178.
(3) Ibn Khaldun, Al-Muqaddimah, Beirut, 1900, p. 465.
(4) See above, pp. 102-103.
but the mutakallimūn used to justify their conclusions.

What is said here about the certainty in these three kinds of baḥth applies to their forms only. They have been described here on the assumption that the matter (i.e. the propositions used in them as premises) is certain. In fact, the mutakallimūn before al-Ghazālī pay little attention to the question of 'form and matter' in their arguments. Ibn Khaldūn informs us that al-Ghazālī was the first mutakallim to attach importance to this question and to be interested in classifying the kinds of premises. In these two points he was influenced by Aristotelian logic.

(d) The method of inference in kalām according to al-Ghazālī:

In the fourth preface of his work al-Iqtisād fi al-Iʾtiqād, al-Ghazālī expounded briefly the kinds of inference which should be used in kalām, and referred the reader, who wanted more explanation and details, to his works: Miʿyar al-ʾilm and Miḥakk al-nazar (in which he expounded the same kinds of inference in more detail).

These kinds of inference (which al-Ghazālī wanted the mutakallimūn to use) are the kinds of inference in Aristotelian logic, as it was known in the Islamic world. They are:

(i) Investigation and disjunction: (Al-sabr wa al-taqṣīm): this kind is the disjunctive syllogism (in logic). Al-Ghazālī kept the name given to it by the preceding mutakallimūn and his description of it is not different from theirs. In Miʿyar al-ʾilm, he explained its conditions as it is in

---

(1) This is clear from Ibn Khaldūn's short survey of kalām in the Muqaddimah, (Beirut,1900), pp.464-465.
(2) Ibid., p. 466.
(3) See below, pp.110-111.
traditional logic\(^{(1)}\).

In his *al-Qiṣṭas al-Mustaqīm*, al-Ghazālī called this kind of inference: the criterion of opposition (mīzān al-ta‘ānud\(^{(2)}\)).

(ii) The predicative syllogism (*al-qiyās al-ḥamlī*): it is the categorial syllogism which has three figures. The rules of each of these figures and their conclusive moods are expounded in *Mi'yar al-‘ilm*\(^{(3)}\). In *al-Qiṣṭas al-Mustaqīm*, al-Ghazālī called this kind of inference: the criterion of equivalence, *Mīzān al-ta‘ādul*\(^{(4)}\).

(iii) The connective-conditional syllogism, (*al-qiyās al-shartī al-muttaṣil*): it is the hypothetical (conjunctive) syllogism. Its rules, also, are expounded in *Mi'yar al-‘ilm*\(^{(5)}\). Al-Ghazālī recommended this kind of inference to the *mutakallimūn* to use in proving the falsity of opponents' allegations\(^{(6)}\). In *al-Qiṣṭas al-mustaqīm* he called it the criterion of concomitance (mīzān al-talāzum)\(^{(7)}\).

This is the form of the kinds of inference which al-Ghazālī wanted the *mutakallimūn* to use in kalām. He, in fact, believes that these kinds should be used, in all sciences, because only by using them can we achieve certainty\(^{(8)}\).

Achieving certainty, according to al-Ghazālī, depends

---

\(^{(1)}\) Al-Ghazālī, *Mi’yar*, pp.156-158. See also, al-Ghazālī, *Mihakk*, pp.42-44.

\(^{(2)}\) Al-Ghazālī, *Qiṣṭas*, pp.65-67. See below, pp.159-161.

\(^{(3)}\) Al-Ghazālī, *Mi’yar*, pp.131-151.

\(^{(4)}\) Al-Ghazālī, *Qiṣṭas*, pp.47-61. See below, pp.139-155.

\(^{(5)}\) Al-Ghazālī, *Mi’yar*, pp.151-155.


\(^{(7)}\) Al-Ghazālī, *Qiṣṭas*, pp.53-60. See below, pp.155-159.

\(^{(8)}\) Al-Ghazālī, *Qiṣṭas*, p.82. See above, pp.69-70.
as already mentioned(1) on two things: using valid forms of inference (i.e. syllogisms) and using certain propositions as premises in these syllogisms. This applies to kalām. After expounding briefly the forms of inference, (in his al-Iqtisād) al-Ghazālī began to expound the kinds of propositions (i.e. premises) which should be used in kalām. They are the kinds of premises we have presented in section (4)(2) of this chapter. They are:

(i) Those based on sense-perception (al-maḥṣūsat(3)): these propositions are considered as certain by all people except those who do not have senses or have lost some of them(4).

(ii) The primary-rationals (al-awvaliyāt al-‘agli­iyah)(5): these are considered as certain by all people except those without intellect(6).

(iii) The widely-transmitted propositions (al-mutta­wātirāt)(7): these are considered as certain by those who received them in this manner i.e. tawātur, (fī ḥaqqa man tawā­rat ilayh)(8)

(iv) Those proved by another syllogism in which the premises were from the three previous kinds(9).

(v) The well-known propositions (al-mashhūrat)(10): He called them also al-sam‘iyāt(11) (literally: auditorys):

---

(1) See above, pp. 69-70.
(2) See above, pp. 71-82.
(4) See above, pp. 71-72.
(6) See above, pp. 74-75.
(7) Al-Ghazālī, al-Iqtisād, p. 12.
(8) Ibid., p. 12; see above, p. 76.
(9) See above, pp. 76-78.
(10) Al-Ghazālī, al-Iqtisād, p. 12.
these do not produce certainty, but they are useful in argumentation with those who recognise them. (1)

(vi) Those accepted by the opponent, *musallamāt al-khāṣm*: those are useful in dispute with opponents. They are assumed to be accepted for the sake of argument in order to prove their falsity. (2)

These are the kinds of premises mentioned in *al-Iqtīṣād*. There al-Ghazālī did not mention the false premises (3) which he had mentioned in Mi'yār. This indicates that he did not consider that false propositions could be used in *kālām*. If the aim is *bahth*, i.e. proving the articles of faith, then certain premises should be used. If the aim is dialectic, *jadāl*, i.e. refuting an opponent's thesis, then well-known premises and those accepted by the opponent should be used beside the certain premises (4).

(e) The reduction of earlier kinds of inference in *kālām* to the three kinds of syllogism:

Al-Ghazālī recognised *al-sabr wa al-taqṣīm* as it was practised by the *mutakallimūn* before him. This is because it is the same as the disjunctive syllogism in logic; but he did not mention their other two methods (i.e. *giyās al-ghā'ib 'alā al-shahid* and *intāj al-muqaddimāt li al-nāṭā'īj*) when expounding the kinds of inference in *al-Iqtīṣād*. The reason for this is that he did not recognise these two kinds as valid, even though many *mutakallimūn* had reached sound conclusions by using them. However, that was because their arguments were capable

---

(1) Ibid., p.13. See above, pp. 76-78.
(3) See above, pp.78-81.
of being reduced to syllogisms and therefore had the power of syllogism\(^{(1)}\). Al-Ghazālī considers qiyās al-gha'ib 'alā al-shāhid as "the transference of a judgement from a certain particular which is similar to it (the certain particular) in some way"\(^{(2)}\). The transference from one particular to another particular, according to Al-Ghazālī, is not a valid inference unless it is possible for the two particulars to come under a universal judgement, and then this (qiyās) is reduced to "the transference of judgement from a universal to a particular which comes under it"\(^{(3)}\) and in such a case "there is no effect of the present example (al-shāhid) which was named"\(^{(4)}\).

Al-Ghazālī says that the present example (al-shāhid) is mentioned only to call the attention of the listener to the universal proposition\(^{(5)}\). For instance, the mutakallimūn say:

> The sky is created because it is a body by analogy with plants and animals which are bodies and the creation of which is perceptible\(^{(6)}\).

According to the method of mutakallimūn "plants and animals" are the present or apperceptible example (al-shāhid); "sky" is the hidden or inapperceptible (al-gha'ib); the common quality is that both are "bodies"; and the judgement is "created".

Al-Ghazālī told us that we cannot conclude from this

---

\(^{(1)}\) Al-Ghazālī, Mi'yar, p. 178.
\(^{(2)}\) Ibid., p. 165.
\(^{(3)}\) Ibid., p. 166.
\(^{(4)}\) Ibid., p. 166.
\(^{(5)}\) Ibid., p. 168.
\(^{(6)}\) Ibid., p. 165.
that 'the sky is created'. However, this conclusion will be true if it becomes clear to us that plants and animals are created because they are bodies and 'body' is the 'middle term of creation' (1), (i.e. the middle term in a categorical syllogism in which 'created' is the major term and 'plants' or 'animals' is the minor term. This syllogism will be in this form: every body is created (major premise), plants are bodies (minor premise), therefore plants are created (conclusion). If this becomes clear then we are aware that we have a universal judgement (i.e. proposition) with which a categorical syllogism from the first figure can be formed, which is:

\[
\begin{align*}
&\text{every body is created,} & \text{(major premise)} \\
&\text{sky is a body,} & \text{(minor premise)} \\
&\text{therefore, sky is created.} & \text{(conclusion)}
\end{align*}
\]

This is how the conclusive arguments in the form of qiyās al-ghāʾib ʿalā al-shāhīd are reduced to categorical syllogisms. If it is not possible to have a universal judgement (i.e. proposition) in an argument in this form (i.e. qiyās al-ghāʾib ʿalā al-shāhīd), then it is not reducible and therefore not conclusive. This - according to al-Ghazālī - is the criterion by which we can distinguish between true and false arguments presented in the form of qiyās al-ghāʾib ʿalā al-shāhīd (3). Thus, according to this criterion, mentioning the shāhīd is superfluous, and the only advantage of mentioning it is to remind us of the universal proposition. Yet since there are more disadvantages in mentioning al-shāhīd, (because many people think of it only and discuss its qualities and do not pay attention to the universal proposition), al-Ghazālī does

---

(1) Ibid., p. 165.
(2) Ibid., p. 165
(3) Ibid., p. 168.
not recommend using it in arguments(1).

Al-Ghazālī has the same attitude towards the other kind of interference used by the mutakallimūn i.e. intāj al-mudīmāt li al-natā'ij. He considers the arguments in this form as valid if it is possible to reduce them to any one of the three kinds of syllogism (which are mentioned above)(2). In this case they have the strength of a syllogism(3). If the reduction is not possible then the arguments are false. Al-Ghazālī, in fact, considers this kind as an enthymeme(4).

8. Discussion and comments:

(a) The relationship between logic and certain knowledge:

Al-Ghazālī discussed the question of certain knowledge in a work devoted to logic, 'Mīyār al-ilm'. He repeated similar discussions in the rest of his works on logic. This indicates his conviction that there was a relationship between logic and certain knowledge. In his view, this relationship can be found in the concepts of both certain knowledge and logic. Achieving certain knowledge is the aim of the search for knowledge.(5) Logic is the instrument or method which helps us in achieving certain knowledge and distinguishing it from non-certain knowledge in general.(6) Thus it can be said that the relationship between logic and certain knowledge is the relationship between the means and the end. Demonstration (i.e. the valid syllogism with certain premises) is the method by

---

(1) Ibid., p. 166.
(2) See above, pp. 108-110.
(3) Al-Ghazālī, Mīyār, p. 178.
(4) See above, p. 107, n.1.
(5) Mīyār, p. 68.
(6) Ibid., pp. 59-60.
which we achieve new certain knowledge, and the rules of logic are means by which we can distinguish between certain and non-certain knowledge and valid and non-valid evidences. (1)

There is another aspect of the relationship between logic and certain knowledge: it is the relationship of a part to the whole. The facts and the rules of logic are permanently true propositions, and such propositions are certain knowledge(2), and so, logic is a part of 'certain knowledge'.

A third feature of the relationship between them which can be derived from Al-Ghazālī's definition of certain knowledge and from the examination of the principles on which logic in general and the syllogism in particular are based. Certain knowledge is the complete congruity between what is in mind and the external subjects. If we examine the principle which is called 'dictum de omni et nullo',(3) on which the validity of the syllogism is based, we will find that this principle is valid because it represents a relationship(4) between things in the actual external world(5). That explains why demonstration can be conclusive. So this feature of the relationship between certain knowledge and logic can be expressed in the fol-

(1) Ibid., p. 60.
(2) See more details above in the chapter devoted to his attitude towards logic.
(3) This dictum may be stated as follows: "If every member of a class (M) has (or does not have) a certain property (P) and if certain individuals (S) are included in that class (M), then these individuals (S) have (or do not have) the property (P)". L. Susan Stebbing, Modern Introduction to Logic, p. 86.
(4) This relationship according to the modern logic, is reduced to the relationship of 'implication', which is one of the relationships that can be found among things. Ibid., p. 221. cf. this with, note 1, p. 116, above.
(5) In spite of what can be said about the formality of the syllogism, al-Ghazālī, as Aristotle and the peripatetics, did not understand from the term: 'formality of the syllogism' that it may express a relationship which is not found in the actual world.
following statement: Each of them reflects or expresses either the actual external world or some of the relationships in it. In other words, we can say that each of them is a reflection of the actual external world from different angles.

(b) The concept of certain knowledge:

Al-Ghazālī determined knowledge as the congruity of what is in mind with what is in the actual world, and certain knowledge is this congruity when it is complete. He also considered the senses as the sole supplier of the mind with the material on which it practises its activities. Mind, with its different faculties, is able, according to him, to deduce by using demonstration, some of the qualities of the actual world which cannot be perceived by the senses...

From this brief summary of al-Ghazālī's theory of knowledge and certainty, some other ideas follow:

(i) Human knowledge is confined to the actual sensible world and it cannot exceed it, except in a limited range as we shall see below in (b). The reason for this is that the mind can only practise its activities on sensory data.

(ii) The only possible metaphysics which can be achieved and will have certain propositions according to this theory of knowledge, is that which is connected with the external sensible world through the subject-predicate relationship(1) That is because the mind is able to achieve propositions, which are not perceivable through the senses, by using the syllogistic method in which the premises are certain (i.e. congruous with the sensible external world); and the syllogism is valid because it is based on the subject-predicate relationship.

(1) This relationship is a part of the 'relation of implication' in modern logic; See: Zaki N. Mahmud, Al-mantiq al-wadi', vol. 1, (5th edition), Cairo, 1973, p. 101.
Therefore, all the non-perceivable propositions we can achieve are connected with the sensible world through this subject-predicate relation.

There is a criterion, implied in al-Ghazālī's theory for the criticism of metaphysics. It can be said that every metaphysics whose relation to the actual sensible world cannot be reduced to the subject-predicate relation is baseless and invalid.

(iii) Al-Ghazālī's theory reduces certainty to the submissiveness and calmness of mind which comes as a result of the congruity between what is in mind and the subjects in the outside world, and considers the mind and its faculties as the instrument which actualises knowledge and certainty - either in primary or non-primary propositions. Thus, it appears that mind is an instrument designed only to comprehend the actual world. While al-Ghazālī accepted this, at the same time he did not mean that mind is the efficient cause for knowledge. In fact, it is only the 'occasionalist cause' (1), and God is the true efficient cause who makes knowledge happen in us when the mind practises its activities, as already mentioned. (2). In this explanation, al-Ghazālī sets forth a kind of guarantee for the certainty we feel in our minds. This explanation, also, is in accordance with his 'occasionalist theory', where whatever happens in the world depends on God's active

---

(1) See above, pp. 63-65.
(2) The term 'occasionalist cause' is used by M.E. Marmura, in his attempt to interpret al-Ghazālī's idea of (i'ttārad al-'adat); in this interpretation, Marmura said that this term "is not employed by Ghazālī, but is suggested by his language". M.E. Marmura, GDS, p. 197.
(3) See above, pp. 92-93, and Mi'yar, p. 235.
(4) See the exposition of it in: M. Fakhry, Islamic Occasionalism, pp. 57-71.
intervention. It is clear that the theological motive is found in both theories which are compatible with his theological views concerning God, the free agent, who has no restrictions on his power.

(c) The premises of the syllogism:

Al-Ghazālī's classification of the premises of the syllogism is taken, for the most part from Ibn Sinā's classification as shown in his work (Al-Ishārāt wa al-Tanbīhāt). Both of them are affected, to some extent, by Aristotle's classification. The basis on which Aristotle, Ibn Sinā and al-Ghazālī set us their classifications is the same; it is the distinction between certain and non-certain knowledge.

In spite of the similarity on this point, there is a difference, between Ibn Sinā and al-Ghazālī in the one hand and Aristotle on the other, concerning the kinds of certain premises. According to Aristotle, certain premises are: axioms, hypotheses and definitions, while, according to Ibn Sinā and al-Ghazālī, they are: pure rational primaries, perceptuals, empiricals, those known from innumerable narrators and those known by an omitted middle.

In these classifications, the effect of the methods and foundations of mathematics on Aristotle is clear, while the natural sciences, mathematics and the Qur'ān were in Ibn Sinā's mind. In this matter al-Ghazālī follows the lat-

(2) The aim of Aristotle's theory of demonstration was to establish the basic structure for certain-deductive sciences. See: A. Dumitriu, History of Logic, vol. 1, p. 186.
(4) See above, the table, p. 82 and Ishārāt, vol. 1, pp. 343-350.
(6) This is clear from considering (al-muwātirāt) as certain knowledge, and the statement that we have received the Qur'ān from innumerable narrators (bi al-tawātūr).
latter exactly.

(d) Al-Ghazālī's theory of knowledge:

Another point, which should be noticed, is that al-Ghazālī was fully aware of the necessity of establishing certainty on epistemological bases. So he presented to us a theory of knowledge even though its parts were few and were scattered in different places\(^{(1)}\) and some of them only emerged in the form of answers to possible objections to his ideas.

Al-Ghazālī's theory of knowledge seems harmonious with his concept of certainty. For certainty depends mainly on the congruity of the actual world. His theory of knowledge tries to explain how the images of the actual world are passed on through the senses to the mind, which practices its activities upon the sensory data.

In his description of how knowledge happens, al-Ghazālī tried to describe the main mental processes which he reduced to four. Thus, he considered the mind to have four faculties, each one for each of these mental processes\(^{(2)}\).

What al-Ghazālī offers us here is, in fact, merely a hypothetical conjecture which he tried to harmonise with his concept of certainty. In this matter he fares in the same way as the majority of philosophers in their conjectures.

It will be noticed, in al-Ghazālī's theory of knowledge, that mind held an important place - even though it practises its activity on sensory data\(^{(3)}\). All the kinds of judgements, mental and sensory, are made by it. So with regard to the problem of knowledge, it is difficult to consider al-Ghazālī as a pure rationalist or a pure empiricist. Rather

---

\(^{(1)}\) Mi'yār, pp. 218-230; 230-235.

\(^{(2)}\) See above, p. 85.

\(^{(3)}\) Cf. above, pp. 85-86.
it is more pertinent to consider him as one of those who com-
promise between the two attitudes.

(e) Certainty and the natural sciences:

(i) It may be said that al-Ghazālī's rejection of the principle of causality in nature should lead him, spon-
taneously, to reject certainty in the natural sciences. For the denial of causality implies the denial of the presence of a permanent order in nature, and so is the denial of having established laws, concerning natural phenomena, and also the denial of the possibility of predicting future events (in nature). However, this was not what al-Ghazālī believed. In fact, he substituted for the principle of causality the prin-
ciple, or the idea of the regularity of habits (Īttād al-‘adat)1 with which he explained order in nature, (which he called also: the habitual practice of God, (sunnat Allāh). Thus he accepted that there were certain premises in the natural sciences, which are the empiricals (al-mujarrabāt)2, from which we can derive new certain propositions i.e. theorems. Thus, according to this principle, we can predict future events in nature3. Yet, al-Ghazālī did not consider 'the regularity of habits' as an absolute and independent principle, because this regularity can be interrupted by miracles, and because it is a manifestation of God's free will who is the real agent of whatever happens in the world.

According to al-Ghazālī, this new principle, (the

---

1 See above, pp.94 - 95.
2 See above, pp.72 - 74.
3 Mi'yar, p. 191. To assert this idea, al-Ghazālī said: "if the mutakallim was told that the neck of his son was severed, he would not doubt in his death, and no ration-
al man would doubt this."
basis for which is found in the Ash'arite school\(^{(1)}\), is capable of explaining both order and miracles in nature, because both are due to the same efficient cause (i.e. God and His free will). It also opens up an opportunity for prediction and beside this it does not contradict God's absolute power and free will. While the principle of causality explains order and enables us to predict future events in nature, it cannot explain the occurrence of miracles\(^{(2)}\), and moreover, for al-Ghazālī it suggested a serious restriction on divine power.

(ii) Al-Ghazālī's theory of certainty (which is not supported by the principle of causality) makes the total of certain propositions in the natural sciences, (i.e. the true theorems) less than what a theory of certainty, based on the principle of causality, can allow us to establish, (as was the case with Aristotle and the peripatetics and most of the philosophers until recent times). This is due, according to al-Ghazālī's theory, to the fact that some scientific facts are based on the description of natural existents, and because most of these existents are subject to change. So the knowledge that describes them and that which is derived from it, will not be certain, but probable (\textit{ẓann}). On the other hand, such knowledge, according to a theory based on the principle of causality, will be certain; because the natural existents, according to this principle, have permanent characters.

Al-Ghazālī, in this point, comes close to modern

---

\(^{(1)}\) Majid Fakhry, \textit{Islamic Occasionalism}, pp. 56-57.

\(^{(2)}\) That is because miracles are disruptions of the natural order which is due, according to the principle of causality, to the inherent nature of things and events. Cf. M.E.Marmura, GDS, p. 195.
ideas in the philosophy of science, but this proximity is in the result and not in the approach. For Scientists nowadays do not accept rules of the form 'A causes B' "in science except as crude suggestions in early stages"(1). Also they recognise that the results they achieve mostly, are not absolutely true or certain and are capable of being modified or changed in the future(2).

(iii) In spite of al-Ghazālī's rejection of Aristotle and the peripatetics' views in explaining order in nature by the principle of causality, he accepted totally Aristotle's theory of demonstration, in which demonstration is the only method for achieving new certain knowledge in the different sciences. It may appear that there is a discrepancy between his denial of causality - unlike Aristotle - and his advocacy of the claims of the demonstrative sciences, as set down by Aristotle, but, al-Ghazālī did, in fact, distinguish between the two and found that the denial of the first did not lead necessarily to the rejection of the other. For demonstration, in which the premises are certain, is, according to both Aristotle and al-Ghazālī, a connection of ideas as they are connected in reality(3). The difference between them is in principle on which each of them based certainty: Al-Ghazālī, as mentioned above, substituted for the principle of causality the idea of the regularity of habits.

(f) Induction and natural sciences:

Al-Ghazālī's discussion of induction and his

(1) B. Russell, History of Western Philosophy, London, Unwin Paperbacks, 1979, pp.642-642. Russell maintained this during his discussion of Hume's point of view about causality, in which there are many points similar to al-Ghazālī's.

(2) R. Harre, The philosophy of science, p.10.

(3) Cf.A.Dimitriu, History of Logic, vol.1, p.188.
definition of it, reflect a clear understanding of its nature. He considered induction as a method which can be applied to natural sciences; but it is not the main method. Demonstration is the main method, following Aristotle.

It seems likely that al-Ghazālī's belief concerning demonstration stands as a stumbling block in the way of finding new aspects in which induction can be applied. Al-Ghazālī, for instance, thought that it was useless or unreliable to infer from the general judgement, achieved by induction, a judgement on one of the particulars (1), but we can derive new knowledge from such a proposition by using it as a minor premise in a valid syllogism (as explained previously) (2).

While we find the later idea true, we find the former - in spite of its theoretical justification - is, from the practical point of view, an obstacle in the way of making use of these general judgements in man's life. For the applications of the scientific theories are, in their essential nature, no more than the transfer of a general judgement to some particulars of its subject. Al-Ghazālī was able to make use of the method of induction in the field of jurisprudence; this is clear from the several examples which he gave in his exposition of induction. This indicates clearly that his concern was directed to the application of induction to jurisprudence more than to the natural sciences.

(g) Kalam and logic:

In several places in his books, al-Ghazālī showed his displeasure at the great number of books on kalam which are full of dispute and disagreements among the mutakallimun (3).

(3) See: Al-Iqtisad, p.10; Mi'yar, p. 166.
This was - according to al-Ghazālī - a result of the lack of accuracy in determining the concepts of their terms, and in not using the valid methods of inference (i.e. the kinds of syllogism) or in using them improperly (1), and/restore the science of kalām in general, al-Ghazālī adopted the methods of inference in logic and applied them to kalām. In doing this he was in conformity with his general attitude towards certainty (i.e. that certainty can be achieved only by demonstration).

It is as a result of this attempt that we find later mutakallimūn interested in the distinction between matter and form in their arguments and in logic in general, which they considered as a criterion for arguments only. (2)

---

(1) Al-Ghazālī, al-Iqtiṣād, p.10; Mi'yar, p.166.
CHAPTER FOUR.

LOGIC AND QUR'ĀN

ACCORDING TO al-GHAZĀLĪ.
1. Introduction:

The Qur'an and its verses were the subject matter of comprehensive studies from different points of view among Muslims. The sciences of the Qur'an, 'ulûm al-Qur'ân, were established as a result of this particular attention.

The Qur'an was a source of inspiration to many scholars in the different sciences. They, also, used to quote verses from the Qur'an which were appropriate to the problems they discussed, because this made the reader tend to trust their results. Even great philosophers like Al-Kindî (796-870) Al-Fârâbî (870-950), Ibn Sînâ (980-1037) practised this.

One of the distinctive qualities of the Qur'an to Muslim scholars is that, in many places, it addresses peoples' intellects and attempts to give rational answers to many problems, such as: the existence of God, his unity, the aim of order in the world...etc.

Muslim scholars, in general, agreed that the Qur'an is compatible with reason and logical thinking. Some of them (Al-Mu'tazila) used to interpret the verses of the Qur'an which seem to be in contradiction to reason, in a way that makes their meanings reasonable.

Al-Ghazâlî held a similar view concerning the Qur'an but we find in one of his books (1) a new interpretation which none of his predecessors had mentioned. He claimed that logic is found in the Qur'an, and that the Qur'an contains the

(1) This book is: Al-Qistâs al-Mustaqîm, the Arabic text is edited by: Victor Chelhot, Beirut, 1959.
absolute criteria of knowledge, which are, as we shall see later, the types of syllogism.

Al-Ghazālī tried to prove this claim in an interesting book, both "in its form and substance"(1), which is called Al-Qīstās al-Mustaqīm, literally, The Just Balance.

In this book, al-Ghazālī maintained that he had studied the Qurʾān carefully and had found that some verses indicate that the Qurʾān contained criteria of knowledge. He had investigated these criteria in the Qurʾān and he had discovered that they consisted of five types.

He discovered, in addition to the true five criteria the false criteria which are similar in some of their qualities to the true ones. These similarities made some scholars think that they were true and as a result they drew the wrong conclusions.

These criteria which al-Ghazālī extracted from the Qurʾān are the first three figures of the categorial syllogism, the hypothetical syllogism and the disjunctive syllogism. Because these types of syllogism are an important part of traditional logic, the relation between the Qurʾān and logic, according to Al-Ghazālī, is a special one, and thus it needs exposition.

2. The Qurʾān classifies the kinds of arguments according to the different classes of people:

The classification of arguments is one of the topics discussed in traditional logic. Al-Ghazālī found that the Qurʾān contains a brief account of the classification of arguments used to achieve knowledge. This is shown, according to

al-Ghazālī — in this Qur’ānic verse:

"summon thou to the way of thy Lord with wisdom and fair exhortation, and dispute with them in the better way"(1).

Al-Ghazālī understood from this verse three things:

(i) There are three kinds of arguments by which we can achieve the knowledge of God and knowledge in general.

(ii) There are three classes of people, classified according to their intelligence.

(iii) There is only one suitable kind of argument for each class of people.

Many scholars were influenced by this understanding of this verse, one of them was the famous philosopher Ibn Rushd (1126-1198)(2). The exposition of these main ideas is as follows:

(i) The people of wisdom (Aḥl al-ḥikmah): Al-Ghazālī also described them as "men of insight and special perception"(3). They are distinguished by: (a) the fact that they have "a penetrating innate disposition and a powerful intelligence; this is a natural gift and an innate capacity which cannot be acquired" (4). (b) the fact that they are free of all naive acceptance and blind adherence to any school of thought, whether inherited or acquired(5). They can be described, in modern terms, as brilliant thinkers. They are also men which think freely, free from fanaticism and blind imitation.

It is clear, therefore, that not every person has the qualifications to be a wise man (ḥakīm). If it happened that

(1) Qur’ān, XVI/125.
(3) Al-Qīstās, Chelhot, p. 85; Brewster, p.78.
(4) Ibid., Chelhot, p. 85; Brewster, p.78.
(5) Ibid., Chelhot, p. 85; Brewster, p.78.
A person became actually wise after being potentially wise, this would mean that he had achieved various kinds of knowledge, among which is the knowledge of the truths of divinity, like the knowledge of God's essence and attributes and the knowledge of "his wisdom of the creation of this world and the hereafter, the meaning of the prophecy and the prophet, the meaning of revelation, angels, satans..., the meaning of the encounter with God, looking at his face and being nearer to him...etc".

If we ask how can "people of wisdom" change from being potentially so to actuality, we will find that this needs several things, the most important one of which is: to learn the "just balances (of knowledge) and how to make use of them". These balances are the five criteria which are found in the Qur'an, and which are, in fact, the logical syllogism, as we shall see in detail.

Therefore, the arguments which suit the people of wisdom are those which are compatible with these criteria, i.e. have the form of a logical syllogism.

(ii) The people of admonition (Ahl al-maw'iza): they are the common folk; he called them "dolts". They do not have the intelligence necessary to understand the truths; even if they did have such natural intelligence, they would not have the tenacity to search for them. Their occupation is with the crafts and the professions. They do not have the tenacity of dialectic, nor do they have skill in artful debate with those of knowledge, being slight of understanding.

(1) Ibid., Chelhot, p. 91, Brewster, p. 91.
(3) Al-Ghazali, al-Qistas, Chelhot, p. 85, Brewster, p.78.
(4) Ibid., Chelhot, p.85. Brewster eliminated the word "dolts" from his translation, p.79.
(5) Ibid., Chelhot, p.85,Brewster, p.79.
In modern terms, the intelligence of this class would be regarded as average, so that it is not possible for them to achieve deep understanding of knowledge.

This class admits and believes in God, his angels, his books, his messengers and the Hereafter, without rational arguments(1). They must learn this from the Qur'ān without going into controversial and polemical discussions, they have to know what they must do and what to avoid. This can be achieved "just by unquestioning adoption and hearing, without discussion or demonstration"(2).

Thus, the arguments which are used with the people of wisdom, i.e. the logical syllogisms, are not suitable for this class of people and they will be harmed(3) if they use these arguments. What suits them and corresponds with their mental faculties is good admonition, al-maw'izah al-hasanah.

Good admonition means: teaching the essentials of Islam, which every Muslim should know, in a simple and easy way, avoiding controversial questions(4).

(iii) The people of dialectic (ahl al-jadal): al-Ghazālī called them people of contention ,(ahl al-shaghb)(5). They have a certain intelligence which lifts them above the commonality, but their intelligence is deficient, or they are perfect in nature, but still retain within themselves malice, stubbornness, party spirit and unquestioning imitation. This prevents them from attaining the truth(6).

(2) Ibid., p.13.
(3) Al-Ghazālī compared this with the harm caused to the infant which is sucking when fed the flesh of birds.
(5) Al-Qistās, Chelhot, p.85, Brewster, p.79.
(6) Ibid., Chelhot, p.90, Brewster, p.90.
This class is above the average level of intelligence and their education is higher than that of the commonality. "They used to ask many questions and raise doubts" (1), and follow that which is ambiguous in Scripture (2) "seeking (to cause) dissension by seeking to explain it" (3). Some sects of the theologians (mutakallimūn) come under this class (4).

This class must be summoned to the truth, firstly, by disputing with them in the better way (bi allatī hiya aḥsan), if they are not persuaded and stick to their false ideas, then they will be treated with force and the sword (5).

The meaning of "dispute with them in the better way" is as follows: (a) taking the premises agreed by the dialecticians and from them deducing the truth by using the syllogism, but without explaining its rules; (b) if they are not satisfied and convinced, because they wish to have clearer insight, they will be taught the criteria of knowledge and their rules i.e. the logical syllogisms, which make them able to distinguish between true and false.

As mentioned above, if "this dispute" fails to make them change their wrong ideas, they will be prevented from spreading their evil by the power of the ruler, because, in this case their purpose will be dissention and not true knowledge (6).

It is clear here that al-Ghazālī understood this Qur'ānic verse, and interpreted it in the light of his knowledge of logic. What can be understood from this verse ("dis-

(1) Al-Ghazālī, Ihya', vol.1, p.29.
(2) Al-Qistās, Chelhot, p.90, Brewster, p.90.
(3) Qur'an, III/7 and LVII/25.
(4) Al-Ghazālī gave an example from the Mu'tazila dialectic, which was based on false opinion, ra'iy fasid. Al-Qistās, Chelhot, pp.94-95, Brewster, pp.97-100.
(5) Ibid., Chelhot, p.89; Brewster, p.90.
(6) Ibid., Chelhot, p. 90; Brewster, p.91.
"dispute with them in the better way"), is just a moral instruction. However, Al-Ghazālī chose to understand it as call to use strict logical rules.

We will try to investigate as deeply as we can, for the motives of his logical interpretation of this verse and the rest of the verses quoted in this chapter in a separate section after drawing the whole picture of the relation between logic and the Qur'ān according to al-Ghazālī(1).

3. The Qur'ān contains criteria of knowledge:

It has been mentioned that al-Ghazālī, while studying the Qur'ān, found that it contained criteria of knowledge. Al-Ghazālī's disputant disapproved of this when he was told about it; "Is this not but lies and calumny?"(2), he replied. Then al-Ghazālī read him some verses of the Qur'ān and interpreted them in a way that supported his claim.

He reminded him of the Qur'ānic verse: "and weigh with the just balance"(3). What can be understood, at the first sight from this verse, is that the balance here is a material one and not a balance of knowledge. So, al-Ghazālī read to his disputant, other verses: firstly, from the Sūrah of the Beneficent: "The Beneficent * has made known the Qur'ān * He has created man * He has taught him utterance"(4), up to the verses: "And the sky He has uplifted, and He has set the balance *that you exceed not the measure * but weigh justly and skimp not the balance"(5); secondly, from the Sūrah of Iron: "Indeed, we sent out Messengers with the clear signs, and we

---

(1) See below section 10, pp. 176-181.
(2) Al-Qistās. Chelhot, p.43; Brewster, p.5.
(3) Qur'ān, XVII/35.
(4) Qur'ān, LV/1-4.
(5) Qur'ān, LV/7-9.
sent down with them the Book and the Balance so that man might uphold justice" (1).

Trying to determine what is meant by "balance" here al-Ghazālī asked his disputant: "Do you think that the balance which is associated with the book is that balance used for wheat barley, gold and silver? Do you imagine that the balance which is associated with the uplifting of the sky in the verse: "and the sky he has uplifted and has set the balance" is the assay-balance for gold or the steelyard? This understanding is far away from the reality" (2).

In this way, he convinced his disputant that the balance mentioned here is not a material one.

Then he began to give, according to his own understanding, positive determination of this "balance" to make its meaning clear, he said: This balance is the criterion, mīzān, of the knowledge of God, of His angels, His Books, His Messengers and of the worlds, visible and invisible" (3).

This balance is not only the criterion of this knowledge, (which is knowledge of the principles of faith in Islam) but it is, also, the criterion suitable for all sciences, such as: mathematics, natural sciences, jurisprudence, kālam etc (4); so it is an absolute rule of measurement.

The balance was used by the prophets in propagating their missions and arguing with their opponents. The prophets

---

(1) Ibid., LVII/25.
(2) Al-Qistās, Chelhot, p.43; Brewster, pp.5-6. (Cf. also, Angelika Kleinknecht, "Al-Qistās al-ʾustaqīm: eine Ableitung der logik aus dem Koran", Islamic philosophy and the classical tradition, Editors, A.M. Stern and others, Columbia, 1972, pp.162-166, where she classified the meanings of the word 'mīzān' in the Qur'ān into three categories.
(3) Al-Qistās, Chelhot, p.43; Brewster, p.6.
(4) Ibid., Chelhot, p.82; Brewster, p.75.
learned this balance and how to use it from the angels who learned it from God\(^{(1)}\). Therefore, God is "the first teacher\(^{(2)}\) who laid down this criterion. The angels are the second teacher, and the prophets are the third. "All men learn from the Messengers that there is no method with regard to knowledge apart from it\(^{(3)}\)."

This balance is not a material one like those used for weighing material things, but resembles them "in meaning but not in form"\(^{(4)}\), i.e. in the property of showing where there is excess or deficiency. This is the thing that all balances share: the Roman balance, the assay-balance, the astrolabe, the metre, the balance of the Day of judgement... etc. Not all these balances are material ones. Some of them are spiritual. The balance of the Qurʾān for knowledge is spiritual in its essence, even though we cannot define it or learn it without its material cover, ghilāf, i.e. the written or spoken words\(^{(5)}\).

The balance of knowledge in the Qurʾān, as mentioned above, has five types which are the types known in traditional logic.

This is how al-Ghazālī discovered that the Qurʾān contains criteria of knowledge.

Now, we have to ask: To what extent do these Qurʾānic verses convince us that what is meant by "balance", is the

---

\(^{(1)}\) Ibid., Chelhot, p. 43; Brewster, p. 5.
\(^{(2)}\) "The first teacher" was the name given to Aristotle by Muslim scholars for his invention of logic; al-Ghazālī, here, attributed this title to God to give the reader the impression that logic is not a strange art to the Qurʾān and Muslims.
\(^{(3)}\) Al-Qistās, Chelhot, p. 43; Brewster, p. 6.
\(^{(4)}\) Ibid., Chelhot, p. 47; Brewster, p. 12.
balance of knowledge? The context of the verses does not give this meaning. Thus, there was no such interpretation before al-Ghazālī. In spite of this, al-Ghazālī, as we shall see in the following sections, went on with his idea and explained "the balance" and its types with examples from the Qurʾān.

In fact these verses, here, if we try to understand them objectively, do not convince us that they mean a balance of knowledge, even though they give the impression that the balance is not the one used for material things (1).

In fact, al-Ghazālī was choosing to interpret them in such a way as to help him realize a specific aim. The full understanding of what he was trying to do here, (i.e. extracting logic from the Qurʾān), is only possible if we know his true aim (2) and the circumstances of his time (3).

We shall try to clarify these points in a separate section in this chapter (4).

4. The trueness of the criteria of knowledge and the Qurʾān:

Al-Ghazālī's disputant, as it appears, was not completely convinced by the idea that the Qurʾān contains criterion of knowledge. So he asked al-Ghazālī this question: "How do you know whether this criterion is true or false?" (5)

Al-Ghazālī began his answer with this statement: The proof of the truth of the Qurʾānic criteria is known from the

(1) See the discussion of the meanings of the word mīzān in Angelik Kleinknecht's article (mentioned in p.133, note2), pp. 162-166.

(2) See below, pp. 178-180.

(3) See below, pp. 177-178.

(4) See below, pp. 176-184.

(5) Al-qistās, Chelhot, p.43; Brewster, p.6. This question is related to epistemology, for it is a question about the means of the true knowledge.
Qur'ān itself" (1). Then he continued his answer with an analysis of the work of the material balance; and from this analysis he derived the main principles on which 'certain knowledge' is based. He maintained that to know whether the weight is true or not, the two pans must be at the same level before weighing. If we see this, we will know necessarily that this balance is a true and good one.

We had this necessary knowledge from two premises: one is experimental and the other is perceptual. The first is that we know by experience that a heavy body falls: "the more it falls the heavier it is" (2). So one says to oneself: If one of the two pans were heavier it would be lower than the other. The second premise (the perceptual) is that we saw the two pans at the same level. There followed in our minds, from these two premises, a necessary conclusion that neither of the two pans was heavier than the other, and therefore the balance is good (3).

If we weigh something with this good balance, and want to be sure that the weights are just, the only way is to verify them by reference to a standard known to us. If they are equal then the weights are just. "For that which is equal to an equal is equal" (4). This last premise is derived from the "nature of intellect" (5).

The validity of this material balance, according to this analysis, is reduced to kinds of premises which produce

(1) Ibid., Chelhot, p. 44; Brewster, p. 7.
(2) Ibid., Chelhot, p. 44; Brewster, p. 8.
(3) Ibid., Chelhot, pp. 44-45; Brewster, pp. 8-9.
(4) Ibid., Chelhot, p. 45.
(5) Ibid., Chelhot, p. 45.
certain knowledge (1) if used in valid forms of syllogism; they are:

(a) What is introduced to us by senses; (b) What is achieved by experience; (c) What is derived from the nature of intellect.

Al-Ghazālī asserts that this analysis applies to the criteria of knowledge, and the knowledge of their premises must be reduced to these kinds.

If we bear in mind that the criteria of knowledge, about which al-Ghazālī was speaking, are the figures of the logical syllogism, and these criteria as shown in the Qur'ān have a matter and form, as we shall see in a following section, we will find that the question about the trueness of these criteria can be divided into two questions: one about the trueness of the matter (the premises of the syllogisms); the other about the form.

Reducing the knowledge in the premises of the criteria to these kinds, mentioned above, is an answer to the first question. However, it has not been taken or derived from the Qur'ān, but from his knowledge of logic. The answer to the other question is mentioned by al-Ghazālī in these words, referred to earlier: "There followed in my mind from these two premises a necessary (item of) knowledge" (2). What can be understood from this sentence is that the intellect deduces, spontaneously or naturally, the conclusions from (suitable) premises when it reflects on them.

Al-Ghazālī here, in fact, is referring to the syllogism in which the conclusion follows from the premises when

---

(1) See above, p. 82.

(2) Al-Qīṣṭas, Chelhot, p. 45; Brewster, p. 8.
specific conditions are fulfilled, these conditions are based on a primary mental principle which later on was called dictum de omni (1).

Al-Ghazālī mentions this principle and the conditions derived from it while expounding the criteria. Again, al-Ghazālī is not taking this from the Qurʾān but rather relying on his own knowledge of logic. The only relation with the Qurʾān is that the examples he analysed, while expounding these criteria of knowledge, were taken from it. The conclusion is that al-Ghazālī did not, or was not able to, prove what he claimed (i.e. that the proof of the truth of the Qurʾānic criteria is known from the Qurʾān itself).

Why did al-Ghazālī claim a thing which he did not, or was not able to prove? The reason, I think, is implicit in the aim of his book (i.e. al-Qīstās) in which he states clearly that logic is found in the Qurʾān. It will be fully investigated at the end of this chapter (2).

5. The criteria of knowledge in the Qurʾān:

The exposition of these criteria takes the greatest part of al-Ghazālī's book: al-Qīstās al-Mustaqīm; However, it is necessary to explain some points before presenting these criteria:

(a) The words, criterion and criteria have been used instead of the Arabic words: mīzān and mawāzin (3).

(b) To explain these criteria, al-Ghazālī cited some

---

(1) See below, pp. 144, n. 1.
(2) See below, pp. 176 - 184.
(3) D.P. Brewster, in his translation to Al-Qīstās, used "rule" instead of the word "mīzān"; I follow here W.Y. Watt's translation of this word in his book: Muslim Intellectual, Edinburgh, 1963, p.69.
Qur'ānic verses, which can be put in the form of syllogism and using these, he tried to explain the criteria of knowledge.

(c) What al-Ghazālī means, here, by criterion, mīzān, is the 'form' of a syllogism abstracted from its 'matter'.

(d) He tried to present these 'forms', mawāzin, in an easy and simplified method avoiding the technical method of logicians.

(e) What al-Ghazālī wanted to explain was "the spirit" of these examples, i.e. the 'forms' of the syllogism, and not the knowledge which the verses show, i.e. the 'matter' of the syllogism. Thus, it is possible to use these criteria wherever we wish(2).

(f) These criteria - which he claimed to have extracted from the Qur'ān - are fundamentally three: the criterion of equivalence, the criterion of concomitance and the criterion of opposition. The first is divided into three: the great, the middle and the small. This makes the criteria five in all(3).

In what follows, these criteria are presented:

I - The great criterion of equivalence, mīzān al-a‘ādul al-akbar:

(a) Its place in the Qur'ān:

Al-Ghazālī knew this criterion from the dispute between Abraham, the prophet, and Nimrūd. "Bethink thee of him who had an argument with Abraham about his Lord, because Allāh had given him the kingdom; how, when Abraham said: My Lord is He who giveth life and causeth death. He answered: I give life and cause death. Abraham said: Lo! Allāh causeth the

(1) Al-Qistās, Chelhot, p. 50.
(2) Ibid., Chelhot, p. 56; Brewster, p. 27.
(3) Ibid., Chelhot, p. 46; Brewster, p. 11.
sun to rise in the East, so do you cause it to come up from the West. Thus the disbeliever was abashed"(1).

What attracted al-Ghazālī's attention, and made him know that there is a demonstration and criterion in the words of Abraham, is another Qur'ānic verse: "This is our argument which We have given to Abraham against his people"(2).

(b) The criterion in the simple logical form (i.e. premises and conclusion):

Whoever is able to make the sun rise is God, (The major premise)
My God is able to make the sun rise, (The minor premise) therefore:
my God (and not Nimrud's god) is the God. (The conclusion).

Al-Ghazālī put this argument in another briefer way, while he was explaining its "form":

My God is the riser (of the sun) (The minor premise)
the riser is the God, (The major premise) therefore,
my God is the God. (The conclusion).

These two similar forms of syllogism, from a logical point of view, are completely correct; the form of this argument is the mood "BARBARA"(3) from the "first figure" of syllogism.

(c) The examination of the matter of the argument:

The matter of an argument is the knowledge which the premises give. Al-Ghazālī is going to examine, here, the matter of this argument, i.e. to see whether it is true or false.

---

(1) Qur'ān, II/258.
(2) Ibid., VI/83.
(3) The names of the moods of syllogism's figures were given by the scholastics. The mood BARBARA can be stated like this: All B is A, all C is B, therefore, all C is A. (See: Anton Dumitriu, History of Logic, vol.1, Kent, 1977, p. 177).
The major premise is known "by convention and common agreement"(1); there is no doubt about this premise, because "for them (Nimrod and his people) and for everyone, the term "God" denotes Him Who is All-Powerful, which includes among other things, the power to make the sun rise"(2).

The minor premise "is known by sight"(3); the inability of Nimrod and of everyone to make the sun rise, apart from Him Who makes the sun rise and move, is known, by the senses.

If a person accepts these two premises, it is necessary that he will accept the conclusion (my God is the God, and not Nimrod), too. Nimrod was not able to reject this conclusion because it follows necessarily from the two premises which are true and accepted by him - as illustrated above.

It is known in traditional logic that in order to have a necessary conclusion in a dialectical argument, the premises must be either certain or accepted by the disputants. This condition is fulfilled in the premises (matter) of this dialectical argument which Abraham used against Nimrod.

(d) The form of this criterion:

We have already mentioned that the form of this argument is the mood(4) BARBARA (from the first figure of the syllogism). It is known that the determination of the first figure of syllogism depends on the middle term (which is the subject of the major premise and predicate of the minor premise)(5).

(1) Al-Qistās, Chelhot, p. 49; Brewster, p. 16.
(2) Ibid., Chelhot, p. 49; Brewster, p. 16.
(3) Ibid., Chelhot, p. 49; Brewster, p. 16.
(5) Ibid., p. 85.
Al-Ghazālī, here, wanted to make us know the first figure, without giving the details of its moods. He determined the form of this figure in a way which differs from the usual way which logicians use. These are his own words: "Whenever I know that a thing is described with an attribute, and know, also, that a judgement is confirmed about this attribute, there follows necessarily that I will know a third item of knowledge which is the confirmation of the judgement (about the attribute) on the thing described" (1).

This determination, in which al-Ghazālī used new terms and a new style, is completely true from the logical point of view. It can be demonstrated as follows:

Suppose the described thing be A
the attribute, be B
and the judgement confirmed on the attribute, be C
then, the thing A which is described with the attribute B can be expressed as:
A is B, this will be the minor premise,
and the judgement C on this attribute B can be expressed as:
B is C, this will be the major premise,
and the confirmation of this judgement C on the thing described A can be expressed as:
A is C, this will be the conclusion.

It is clear that the attribute B is the middle term which is subject of the major premise and predicate of minor.

We have to bear in mind, in this illustration, that the sentence: 'A is B' means B is predicated of A; and that

(1) Al-Qistās, Chelhot, pp. 50-51; Brewster, p. 18.
the attribute B of a thing A, and "the judgement (B) on a thing (A)" mean, according to al-Ghazālī, that (B) is predicated of (A).

We have to ask, in spite of his accurate determination of this criterion, whether the style, which al-Ghazālī used here, is easier to understand than that used by the logicians in his time or not. It does not in fact, seem any easier. Al-Ghazālī himself felt that it was difficult to understand which he expressed through his opponent. As a result, he gave several examples to explain his difficult determination. Why did al-Ghazālī choose this difficult style on this occasion? This question is related to the rest of the questions we promised to discuss at the end of this chapter, and will be discussed there(1).

(e) The validity of this criterion:

After showing that the premises of this criterion are true and acceptable, and there are no doubts about them. In examining the form of this criterion, he came to an important question: Why should the conclusion necessarily follow from the premises in this form? Or, why is this criterion valid?

Al-Ghazālī's answer is this: This criterion is valid, because the judgement on the attribute of a thing is a judgement on the thing described by this attribute(2) on the condition that the attribute must be equal or more in extension than the thing to described(3).

Regardless of the new terms in this answer, we see

---

(1) See below, pp. 180-182.
(2) Al-Qistās, Chelhot, p.50; Brewster, p.18.
(3) Ibid., Chelhot, p. 52; Brewster, p.20.
here a statement based on the *dictum de omni*\(^{(1)}\) principle which was first formulated by Aristotle\(^{(2)}\), and on which the validity of the first figure of syllogism is based. Again this statement differs from all the statements given by the logicians before him.

He applied this statement to four examples to show its validity, one of them from jurisprudence\(^{(3)}\). An example is:

\[
\begin{align*}
\text{All worms are animals} & \quad \text{(Minor premise)} \\
\text{All animals are sensitive} & \quad \text{(Major premise)} \\
\text{Therefore,} & \\
\text{all worms are sensitive.} & \quad \text{(Conclusion)}
\end{align*}
\]

This syllogism is the mood BARBARA\(^{(4)}\), all the examples he gave here are from this mood.

It is easy to apply his statement to this example:

worms—the described thing, (this will always be the minor term)
animals—the attribute, (this will always be the middle term)
sensitive—the judgement, (this will always be the major term)

Whatever we judge on the attribute (animal) will be a judgement on the described thing (worms).

At first sight, this illustration seems to be convincing, i.e. that his statement is correct. However, after examining it, we find that in order to be correct, from the standpoint of logic, the statement "the judgement on the attribute", must give the meaning that it is a judgement on the whole

---

\(^{(1)}\) "If A is asserted about any B, and B about any \(\bar{A}\) is necessarily asserted about any \(\bar{A}\)". Anton Dumitriu, History of Logic, vol. 1, p. 177.


\(^{(3)}\) This example is: All intoxicants are forbidden, wine is intoxicant, therefore, wine is forbidden. Al-Qistās, Chelhot, p. 52; Brewster, pp. 20-21.

\(^{(4)}\) See above, p. 140, n. 3.
attribute, i.e. on every member of the class which this attribute represents. For "the judgement on the attribute" will be the major premise which must be universal. If the judgement is on part of the attribute, then the syllogism, composed in this way, will not be conclusive.

Can this meaning be clearly understood from al-Ghazālī's statement? It can be argued that this meaning is implicit in this statement, but as far as logic is concerned, it is not satisfactory to give an implicit meaning, especially, if we are speaking about such an important logical rule.

It is somewhat surprising to find al-Ghazālī giving the completion of his incomplete explanation (about the validity of this criterion), in another part of his book, Al-Qistās, while he was expounding the second criterion. He says: "Just as the determination of the rules upon which the validity of the great criterion is: the judgement applied to that which is more in extension is a judgement applied to that which is less in extension, which is included in that which is more in extension." (3)

This statement is an exact formulation of the dictum de omni principle, mentioned above. This should have been mentioned in its correct place.

(f) The use of this criterion in obscure arguments:

Some of the premises of the arguments are not self-evident and not necessarily accepted at first sight. If such premises are used in an argument, and the opponent in a dispute doubts them, then to convince him, we should make the premise,
a conclusion in a syllogism by using more evident premises. If the opponent is convinced, the dispute will come to its end. If not, then we have to do the same with the premises, of the later syllogism, which are not accepted. We have to repeat the composition of new syllogisms using each time more evident premises until we reach primary premises (1).

Al-Ghazālī gave an example of this kind of analysis, so that in order to find a solution, if we wanted to know whether man has a cause and creator or appears of himself, or, if we wanted to know the same thing about the world, we could use this criterion, (the first figure) as follows:

All that is possible is that which has a cause, the specific formation, ikhtīsās, of the world and of man in their proper proportions is possible, therefore, the world and man is that which has a cause.

If the opponent accepted the premises, he should accept the conclusions. However, if he denied the premise "all that is possible has a cause", then we had to prove it by using another syllogism in which we should use more evident premises, as follows:

The possible is that which hovers between two equal alternatives, all that (before its actual existence) hovers between two equal alternatives is that which has a cause (to change it from possibility to actuality), therefore, the possible is that which has a cause.

(1) Ibid., Chelhot, p. 54; Brewster, p. 25.
In this way, we can prove all the premises which are obscure and establish their conclusions from the evident premises\(^{(1)}\).

This analysis issues from his view of knowledge, already discussed, i.e. that certain knowledge is established on primary propositions, from which we can achieve new, higher and more complicated knowledge, by using them in valid syllogisms. This view is a mathematical \(^{(2)}\). It is also an Aristotelian view\(^{(2)}\).

II. The middle criterion of equivalence:

(a) Its place in the Qur'ān:

Al-Ghazālī showed us this criterion in three places in the Qur'ān:

The first is a description of Abraham's perplexity during his search for God: "When the night grew dark upon him, he beheld a star. He said: This is my Lord, but when it set, he said: I love not things that set"\(^{(3)}\).

The second is an argument to Muḥammad against Jews and Christians: "The Jews and Christians say: We are sons of Allāh and his loved ones. Say: Why then does He chastise you for your sins? Nay, you are but a part of the human beings He created"\(^{(4)}\).

The third is an argument to Muḥammad against the Jews: "Oh you who are Jews! If you claim that you are friends of Allāh apart from (all) mankind, then long for death if you are truthful. But they will never long for it"\(^{(5)}\).

---

\(^{(1)}\) Ibid., Chelhot, pp.53-54; Brewster, pp.22-25.
\(^{(2)}\) See above, pp.69-70.
\(^{(3)}\) Qur'ān, VI/77.
\(^{(4)}\) Qur'ān, V/18.
\(^{(5)}\) Ibid., LXII/6-7.
(b) The criterion in the simple logical form: (premises and conclusion):

The first argument:

The moon sets, \textit{(Minor premise)}
God does not set, \textit{(Major premise)}
therefore,
The moon is not God. \textit{(Conclusion)}.

This argument is a syllogism from the mood CESARE\(^{(1)}\) of the second figure.

The minor premise and the conclusion are seen in the verse, above, clearly. The major premise is not clear in it, but it is implicit in the context. Al-Ghazālī explains this as due to the style of Qur‘ān which is concise and inclusive\(^{(2)}\), but this omission does not render the argument conclusive. The logicians called syllogisms, in which one premise is omitted, enthymeme\(^{(3)}\). Thus, this argument, in the verses, is an enthymeme syllogism.

The second argument:

Children are not punished, \textit{(Major premise)}
You all (Jews and Christians)
are punished, \textit{(Minor premise)}
therefore,
You are not children (of God). \textit{(Conclusion)}.

This argument\(^{(4)}\) is a valid syllogism from the mood CESARE of the second figure.

---

(1) The form of this mood is: No A is B, All C is B, therefore No C is A. See: A. Dumitriu, History of Logic, vol. 1, p. 178.
(3) L.S. Stebbing, A Modern Introduction to Logic, p. 83.
(4) Al-Qīṣṭās, Chelhot, p. 57; Brewster, pp. 29-30.
The third argument:
Every friend of God desires to meet God, (Major premise)
The Jews do not desire to meet God, (Minor premise)
therefore,
The Jews are not friends of God. (Conclusion).

This is, here, a syllogism from the mood CAMESTRES of the second figure. The minor premise is clear in the Qur'anic verse, the conclusion which is the aim of the argument, is very clear in the verse even though it does not appear in it as a sentence. The major premise is not clear in the verse, but it is implicit in the context. So this argument is an enthymeme syllogism.

(c) The examination of the matter of the arguments:

In the first argument, above, the minor premise is known by the senses, so it is necessarily true. The major premise is not primary knowledge, but for Abraham it was already known, because it was the conclusion he achieved by using two premises accepted (by him) in a valid syllogism. So the conclusion of this argument can be accepted as true.

In the second argument, the major premise is known by

---

(1) the form of this mood is: All A is B, No C is B, therefore, No C is A.
(2) "Syllogisms in which one premise is omitted are called enthymemes". L.S. Stebbing, A Modern Introduction to Logic, p. 83.
(3) Al-Ghazālī did not give the minor premise in this syllogism and so it is enthymeme syllogism; here is the complete syllogism: All that changes is created (major premise); God is not created (minor premise); therefore, God does not change (conclusion). This syllogism is the mood CAMESTRES of the second figure. See Al-Qistās, Chelhot, p.56; Brewster, p. 27.
experience, the minor is known by sight. So the conclusion is necessarily true.

In the third argument, the major is known by experience, the minor by the senses. So the conclusion is necessarily true.

(d) The form of this criterion:

This criterion is the second figure of the syllogism in which the middle term is a predicate in the two premises. Also, in this figure, one of the two premises must be negative\(^1\). This determination was made by Al-Ghazālī, but in a new style. In this criterion, we describe one of two things with a certain attribute and negate the same attribute for the other thing\(^2\).

This determination is true. It can be illustrated as follows:

Suppose the first thing to be \(A\), and the other to be \(B\), and the attribute to be \(C\). Then the description of the first thing can be expressed as:

\[ A \text{ is } C \]

and the negation of the same attribute to the other thing is:

\[ B \text{ is not } C \]

It is clear here that \((C)\) is the predicate in the two premises, and one of them must be negative.

Al-Ghazālī here, as in the first criterion, did not want to speak about the moods of this criterion.

(e) The validity of this criterion:

Al-Ghazālī explained the validity of this criterion:

---

\(^1\) R.M. Eaton, General Logic, p. 106.
\(^2\) Al-Qistās, Chelhot, p. 56; Brewster, p. 28.
"If there are two things and we describe one of them with a certain attribute and negated the same attribute for the other, then these two things must be different i.e. one is negated by the other and (the other) is not described by it (the first)"(1).

Al-Ghazālī illustrated this statement with a simple example:

Every stone is inanimate (jamād), (Major premise)
man is not inanimate, (Minor premise)
therefore,
man is not a stone. (Conclusion)

This syllogism is the mood CAMESTRES. There are two things: stone and man. Stone is described with the attribute 'inanimate', and this attribute is negated for man. Therefore it is necessary to have the conclusion, that no man is a stone and no stone is a man.

Again we have here a new explanation of this form. Aristotle, and the logicians after him, considered the second figure, and the third figure as imperfect syllogisms, and so the proof of their validity is made by reducing them to the first figure, which was considered as the "perfect syllogism"(2)

If we examine al-Ghazālī's explanation here, we will find:

(i) It determines the form of this criterion, as illustrated above(3).
(ii) It asserts that one of the two premises must be negative.
(iii) It does not specify the quantity of the premises, but what can be understood from the context is that the two premises are universal, without determining which one is the major premise.

---

(1) Ibid., Chelhot, p. 56; Brewster, p.28.
(3) See above, p. 150.
It is known that the special rules of the second figure are two: (i) one of the premises must be negative; (ii) the major premise must be universal.

The first rule is clear in al-Ghazālī's statement, but the second is not. This statement can apply only to two moods out of the four conclusive moods in this figure, which are: the mood CESARE (E and A then E) and the mood CAMESTRES (A and E then E), because the two premises in the moods are both universal; but the statement cannot apply to the other two moods: the mood FESTINO (E and I then O) and the mood BAROCO (A and O then O), because in the premises of each mood there is a particular premise.

So, since al-Ghazālī's explanation here applies to some of the moods of this criterion (i.e. second figure), and not to all of them, we cannot say that it is completely wrong, but that it is an incomplete explanation.

(f) The uses of this criterion:

This criterion gives, only, negative conclusions, i.e. it only gives us negative knowledge; because a part of the knowledge about God is negative knowledge, by which we know that God is not similar to any other things. For this reason, this criterion is used to achieve this kind of knowledge concerning God, for example; we know by this criticism that God is not a substance, jawhar, nor an accident, 'arad, and many other negative facts about God.

Because al-Ghazālī did not mention other uses of this criterion, this seems to imply that this criterion would only be of a very limited use in the sciences where positive knowledge is really necessary.

(1) R.M.Eaton, General Logic, p. 106.
III. The small criterion of equivalence:

(a) Its place in the Qur'ān.

Al-Ghazālī found this criterion in the following verses, which are an argument against those who deny that God sent Books (Scriptures) to some men: "They do not attach the proper value to God when they say: God has never revealed anything to a human being. Say: Who revealed the Book with which Moses brought a light and guidance unto men?" (1)

(b) The criterion in the simple logical form: (premises and conclusions):

Moses is a human being, (minor premise)
Moses was given the Scripture, (major premise)
therefore,
Some human beings were given the Scripture. (Conclusion)

It is clear that the premises are found in the verses but the conclusion is not. What is found is its contradictory: "God has never revealed anything to a human being", i.e. no human being was given the Scripture. Because the conclusion is true, its contradictory must be false (2).

This is what the argument in the verses wants to prove.

(c) The examination of the matter of the argument:

The minor premise is known by the senses; the major premise is known because the Jews recognise it, and this argument is mainly directed against them.

Al-Ghazālī comments on this argument saying that it

(1) Qur'ān, VI/91.
(2) The propositions A and B are said to be contradictories; if A is true, B is false, and if A is false B is true. They cannot be true together or false together. See: L.S. Stebbing, A Modern Introduction to Logic, p. 58.
is an example of "disputing in the better way" in which, as already mentioned (1), it is sufficient to use the premises admitted by an opponent, even though others may doubt them (2).

(d) The form of this criterion:

This criterion is the third figure of the syllogism in which the middle term is the subject in the two premises. Al-Ghazālī determined this criterion as follows: There is one thing to which we apply two descriptions. This determination gives us the form of the third figure which can be illustrated as follows:

Suppose the thing to be A,
the first attribute to be B,
and the second attribute to be C, then,
the first description of the thing can be expressed as:
A is B, and the second description of it as:
A is C.

Here, A is the middle term, B and C are the minor and the major terms (3), and these premises (A is B and A is C) are the major and the minor premises. That is enough to determine this criterion.

(e) The validity of this criterion:

Al-Ghazālī explained the validity of this criterion as follows: If two descriptions are attributed to one thing, then one of the two descriptions must be - necessarily - a description of some (members in) the other, but not the whole of it. It may be so (i.e. one of the two descriptions may be a description of the whole of the other) in some cases but not in others, and so we cannot accept it as a universal conclusion (2).

(1) See above, pp. 130-132.
(2) Al-Qistas, Chelhot, p. 60; Brewster, p. 33.
(3) We cannot say which one is the major or minor, as in the first figure, unless we put the conclusion or suppose any other determination.
(4) Ibid., Chelhot, pp. 60-61; Brewster, p. 34.
(5) Ibid., Chelhot, pp. 60-61; Brewster, p. 34.
This is a new statement which, again, differs from the usual statements of the logicians. What can be understood from it is:

(i) It determines the form of the third figure, as already mentioned.

(ii) It shows that the conclusion must be particular.

(iii) What can be understood from it, concerning the premises, is that both of them are universal affirmatives.

It is known that the rules of this figure are: (a) the minor premise must be affirmative and (b) the conclusion must be particular\(^1\). It is clear here that al-Ghazālī's statement satisfies only the second rule. So, it applies only to one out of the six conclusive moods in this figure which is the mood DARPTI (A and A then I), the simple example which al-Ghazālī gave to illustrate his explanation is from this mood:

\[
\begin{array}{c}
\text{The snake is an animal,} \\
\text{The snake moves without legs,} \\
\text{therefore,} \\
\text{some animals move without legs.}
\end{array}
\]

(Minor premise)(A)
(Major premise)(A)
(Conclusion) (I)

So we come to the same conclusion that we did in the second criterion: Al-Ghazālī's explanation of the validity of this criterion is incomplete.

(f) The uses of this criterion:

The conclusions of this criterion are, only, particulars. So it is used, mostly, wherever there are universal propositions which seem to be admitted or accepted without examination. This criterion shows whether such a proposition is true or false, because if we find that some cases, or at least

\(^1\) R.M.Eaton, General Logic, p. 108.
one, to which this proposition does not apply, then it will not be a universal proposition or judgement.

An example of this is the following. Some people say: Every lie is repulsive in itself. To examine this universal proposition we can say: if a person saw one of the friends of God (wali) hiding himself from a tyrant, and this tyrant asked the person about his place, and the person denied seeing him: would this be a lie? The answer will be: yes. Would it be repulsive? The answer will be: no. (1)

We can use the propositions, asserted in this discussion, in this criterion, as follows:

The answer of the person is a lie. (Minor premise)
The answer is not repulsive, (Major premise)
therefore,
some lies are not repulsive. (Conclusion)

So this conclusion is true, and the previous universal judgement is not true (2).

IV. The criterion of concomitance, al-talatzum:

This criterion is called, in traditional logic, the mixed hypothetical syllogism. (3) Al-Ghazālī, in Mi'yar al-'ilm, and the preceding Islamic logicians called it 'connective-conditional syllogism'. (4)

(a) Its place in the Qur'ān:

Al-Ghazālī showed us this criterion in three places:
The first is in the following verse:
"If there were gods other than God, both (the sky and

---

(1) Al Qistās, Chelhot, p. 60; Brewster, pp. 33-34.
(2) Ibid., Chelhot, p. 60; Brewster, p. 34.
earth) would surely go to ruin"\(^{(1)}\).

The second is in the verses:

"Say: of there had been other Gods with Him, as they say, in that case assuredly they would have sought a way unto the Lord of the Throne"\(^{(2)}\).

The third is in the verse:

"If those (false gods) had been gods, they would never have gone down (to Hell)\(^{(3)}\).

(b) The criterion in the simple logical form:

The first argument:

If the world had two gods, it would surely go to ruin, (P.1)
it is known that the world has not gone to ruin, (P.2)
therefore, the world had not two gods. (C.)

The first premise (P.1) is the hypothetical premise which is composed of two categorical propositions; the second premise (P.2) is a categorical proposition.

We see here that the Qur'anic verse gave us only the hypothetical premise, and did not mention the second premise and the conclusion. This is because they are clear and implicit in the hypothetical premise.

The second argument:

If there were with the possessor of Throne other gods, they would have to find a way to him, (The hypothetical premise)
it is known that they have not found such a way, (The categorical premise)
therefore,
there were with the possessor of Throne, no other gods. (Conclusion).

(1) Qur'ān, XXI/21.
(2) Ibid., XVII/44.
(3) Ibid., XXII/99.
Again, we did not find, as in the first argument, the categorical premise and the conclusion, in the Qur'ānic verse.

Al-Ghazālī did not show us the third argument which is similar to the previous two.

(c) the examination of the matter of the criterion.

Al-Ghazālī, here, did not examine the premises of the Qur'ānic arguments; he gave other simple examples and showed us that they had the same form which the Qur'ānic arguments had.

The same rule, which applied to the three criteria, we have already mentioned, applies also to this criterion, i.e. that the premises must present primary knowledge, or knowledge deduced from primary knowledge (1). In dialectic arguments, it is sufficient for the premises to be accepted by an opponent.

This is one of the examples he gave:

if the sun is risen, the stars have disappeared from sight, (P.1)
it is known that the sun is risen, (P.2)
therefore, the stars have disappeared from sight. (C.)

The first premise (P.1) is known by experience, the second by the senses.

(d) The form of this criterion:

This syllogism is composed of two premises: a hypothetical (or conditional) (2) and a categorical.

In the first, there are two parts, the antecedent, al-malzūm, (the implicant) and the consequent as al-lāzīm, (the implicate). There is a conjunctive between the implicant

(1) See above, pp. 136-137.
(2) Al-Ghazālī used the word, sharīyyah, (conditional) following the preceding Islamic logicians.
and implicate.

The second premise is a categorical proposition, and it must be either the antecedent itself or the negation of the consequent.

The example which al-Ghazālī gave from the Qur‘ān for this criterion, (shown in section (b) here) is from the mood TOLLENS, in which the consequent in the hypothetical (also called the major) is denied by the categorical premise (also called the minor). The logical form of this mood is:

if A is B, A is C,
but, A is not C,
therefore, A is not B. (1)

(e) The validity of this criterion:

Al-Ghazālī presented the rules of this criterion in the same way which is used by the traditional logicians, in general. It is known that the rule of this mood of mixed hypothetical syllogism is that "the antecedent must be affirmed or the consequent denied" (2) for a conclusion to follow, while in "denying the antecedent or affirming the consequent" (3), no conclusion follows. (4)

Here are the words of Al-Ghazālī:

"the negation of the implicate, al-lāzīm, brings about necessarily the negation of the implicant, al-malzūm, and the affirmation of the implicant brings about necessarily the affirmation of the implicate, while the negation of the implicant or affirmation of the implicate are not conclusive" (5).

---

(1) R.M. Eaton, General Logic, p. 159.
(2) Ibid., p. 161.
(3) Ibid., p. 161
(4) Ibid., p. 161.
(5) Al-Qistās, Chelhot, p. 63; Brewster, pp. 39-40. (Brewster's translation of this quotation, here, was not accurate). Ibn Sīnā (in al-Najāt, pp. 50-51), used a similar statement using the terms 'antecedent' and 'consequent', but he used 'al-lūzūm' as an explanatory word.
It is clear, here, from the comparison between the two statements just mentioned, that al-Ghazālī's determination of the validity of this criterion is accurate.

(f) The uses of this criterion:

This criterion is used in jurisprudence and in theoretical discussion, -naẓārī (as kālām and philosophy). He gave examples for both aspects. An example from theoretical discussions is the one in which he used this criterion to prove the existence of God and some of his attributes. He said:

If the making of the world and of human beings is in a wonderful and well-planned manner, then its maker must be knowing, but it is known that the world is wonderful and well-planned, therefore, its maker is knowing. He went on: If the world's maker is knowing, He must also be living, but it is known that He is knowing (from previous argument), therefore the maker of the world must be living, ḥāyy.

5. The criterion of opposition,  al-ta'ānūd:

This criterion is called, in traditional logic, the mixed disjunctive syllogism; Al-Ghazālī, in Mi'yar al-'ilm, and the preceding Islamic logicians called it 'separative-conditional syllogism'.

(a) Its place in the Qur'ān:

Al-Ghazālī gave one argument from the Qur'ān to explain this criterion. It is these verses: "Say! who gives you provision from the sky and the earth? Say! God. Surely, either we or you are upon right guidance or in manifest error." (2)

(b) The argument in the simple logical form:

either we or you are in manifest error, (Major premise)

(1)  Ibid., Chelhot, p. 63; Brewster, p. 40.
(2)  Qur'ān, XXXIV/24.
it is known that we are not in error, (Minor premise)
therefore, you are in (manifest) error. (Conclusion).

The major premise, here, is a disjunctive proposition. The minor is a categorical proposition. It, (the minor premise) is not clear in the Qur'anic verse, but it is implicit in it, as al-Ghazālī illustrated(1).

(c) The examination of the matter of the criterion:

This argument is a dialectic one, so it is sufficient for the premises to be accepted by the two sides of the dispute. This is the case in the major premise: the minor premise, which is implicit in the verses is, also, accepted by the both sides, according to al-Ghazālī's interpretation.(2)

(d) The form of this criterion:

In this criterion, the major premise is a disjunctive proposition, and the minor is a categorical proposition, which either affirms one of the separate parts or denies it.

This is the form which al-Ghazālī determined here. This determination applies to the four conclusive moods in this mixed disjunctive syllogism.

The Qur'anic example, here, is from the mood TOLLEndo rONENS(3).

(e) The validity of this criterion:

Al-Ghazālī, here, used the style used by logicians to show the validity of this criterion; he said: "If something is found under two divisions, it follows that the affirmation of one of them is the denial of the other, and the denial of

---

(1) Al-Qistās, Chelhot, p. 65; Brewster, p. 42.
(2) Al-Qistas, Chelhot, p. 65; Brewster, p. 42.
(3) The form of this mood is: Either A or B is C, but A is not C, therefore, B is C. See: J. Welton, A Manual of Logic, vol.1, pp.366, 373.
one is the affirmation of the other, but with the condition
that the divisions are limited and not extended (1).

This statement is similar to this modern statement
on the same point: "where a proposition $P$ excludes (another)
$Q$, we can infer the falsity of one of the propositions from
the truth of the other, and the truth of one from the falsity
of the other" (2).

It is clear that the two divisions in al-Ghazālī's
statement are the propositions $P$ and $Q$ in this modern state-
ment. This leads to the conclusion that the determination
of al-Ghazālī of the validity of this criterion is correct
and accurate.

(f) The uses of this criterion:

This criterion is used, mostly, in theoretical dis-
cussions i.e. philosophy and theology, when the argument is
moving between affirming a proposition or denying it.

Al-Ghazālī illustrates this with the following ex-
ample: if a person denies the existence of an eternal being,
we can say to him: Existing things either are all created or
some of them are eternal; but it is known that not all of
them are created; therefore, some of them are eternal. If
the opponent denied one of the premises we should prove it to
him by using a new syllogism until he accepts the premise or
reaches primary premises which nobody can deny (3).

6. The Satanic criteria:

The Satanic criteria are not-true conclusive syllo-
gisms. Every true conclusive criterion has some not-true

(1) Al-Qistās, Chelhot, p.66; Brewster, p.43.
(2) K.N.Eatough, General Logic, p. 185.
(3) Al-Qistās, Chelhot, p.66; Brewster, p. 44.
conclusive criteria which are similar, in some aspects, to the true. This similarity makes some people think that they are valid and true and so they draw false conclusions.

Al-Ghazālī attributed these not-true conclusive syllogisms to Satan, in spite of his assertion that it is a lack of knowledge of the rules and conditions of syllogism which leads to drawing the wrong conclusions.(1)

(a) Its place in the Qur’ān:

Al-Ghazālī gave two examples of the Satanic criteria from the Qur’ān:

The first example is in the verses; "And when he (Abraham) saw the sun rising he cried: This is my Lord! This is greater(2).

The second example is the answer of Iblīs to God in the verses: "He said: Oh Iblīs: What hindered you from bowing before that which I have created with mine own hands? Are you too proud or are you of the high exalted? He said: I am better than him, You have created me of fire and him, You have created of clay"(3).

(b) The faults in these arguments:

The faults in the Satanic criteria can be reduced to two. (i) Faults in the form of the criterion and (ii) faults in the matter of the criterion. The first argument is an example of the first - the second is an example of the second.

The analysis of the first argument is as follows:

God is the greatest, (Major premise)

The sun is the greatest(of the stars)(Minor premise)

therefore,

The sun is God. (Conclusion).

(1) Ibid. Chelhot, p. 72; Brewster, p. 55.
(2) Qur’ān, VI/71.
(3) Ibid., XXXVIII/76-77.
The premises of this argument are true, the major is known by agreement and the minor by the senses. The fault in this argument is in its form; it is similar to the second figure of categorical syllogism, (in which the middle term is the predicate in both premises), in which one of the premises must be negative and the conclusion as well. This condition is not fulfilled in this argument and so it is a false argument.

Al-Ghazālī's explanation of its fault is that the description of two things with one attribute does not make a necessary connection between them. He gave the following simple example to illustrate this statement: if we say;

white is colour,
black is colour,

we cannot conclude from these two premises that white is black, because, here, as in the (false) argument above, we describe two things with the same attribute(1).

This explanation is true because it implies that in this mood of the syllogism both of the premises are affirmative, while one of them should be negative.

The fault of the second argument is due to its matter, the analysis of this argument is as follows:

I (Iblīs) am better than he (Adam) is, (Minor premise)
the better does not bow down, (Major premise)
therefore,
I will not bow down. (Conclusion).

This syllogism is from the mood BARBARA of the first figure; it is valid in its form, but its premises are false: the major premise (the better does not bow down) is false, because, as a creature, being better does not mean that he should

(1) Al-Qistām, Chelhot, p. 76; Brewster, p. 63.
not prostrate, "for such obligation and worth derive from com-
mand and not from superiority"(1); and the minor premise (I am
better than he is) is not accepted. Iblīs tried to prove this
premise by using a syllogism as follows:

Whoever belongs to a better origin is better, (Major premise)
I (Iblīs) belong to a better origin, (Minor premise)
therefore,
I (Iblīs) am better. (Conclusion).

This is a valid syllogism from the mood BARBARA, but
its matter, like the one before, is false and not accepted.
The major premise is false because "superiority is derived from
personal qualities and not from one's origin"(2). Thus we say:
Abraham is better than the sons of Noah even though Abraham's
father was an unbeliever. The minor premise is false too, be-
cause it is not accepted that fire is better than clay. On
the contrary clay is better in several aspects(3).

The arguments which are valid in form and false in
matter are like, according to al-Ghazālī, the wooden sword(4).

(c) An example for the Satanic criterion used by the
Ta'limiyyah:

This is only indirectly connected with the subject-
matter of this chapter(5).

However, al-Ghazālī uses the exposition of this cri-
terion to refute one of al-Ta'limiyyah's main ideas by logic.

They argue: "Truth lies with the one and falsehood
lies with the many. The school of personal opinion, ra'y,

---

(1) Ibid., Chelhot, p. 76; Brewster, p. 63.
(2) Ibid., Chelhot, p. 77; Brewster, p. 64.
(3) Ibid., Chelhot, p. 77; Brewster, p. 64.
(4) Ibid., Chelhot, p. 77; Brewster, p. 65.
(5) See below: p. 179.
engenders many (views), while that of the Ta'lim leads to but one. Hence it follows that truth lies with the school of Ta'lim"(1). This statement can be put in the simple logical form as follows:

Truth is one, (Major premise)
The school of Ta'lim is one (Minor premise)
therefore,
the school of Ta'lim is true. (Conclusion).

This is an invalid argument because we conclude a relation between two things described with one attribute, while in this case, no relation can be concluded — as already illustrated, in the example of Abraham and the sun — because this argument is one of the not-conclusive moods of the second figure of syllogism.

7. Al-Ghazālī's style in expounding these criteria:

We mentioned, while expounding the Qur'ānic criteria that al-Ghazālī used a new style, in expounding some logical matters. This was unfamiliar to the people dealing with logic.

In a very precise and important paragraph, in the conclusion of his book, Al-Qistās Al-Mustaqīm, al-Ghazālī mentioned three things in which he uses a new style. Because the importance of this paragraph, it will be quoted and analysed, and compared with what he actually did.

"I beg those who are sincere to accept my excuses, as they read these discourses, for the syntheses and analysis to which I gave preference in the teaching, al-madhhab, for the changes and substitutions of the terms which I have introduced

(1) Al-Qistās, Chelhot, p. 73; Brewster, pp. 57-58.
(for the first time), and for the illustrative examples which I invented to show the meanings. I have for each one (of these changes), a true aim and a secret which is clear to those who have insight(1).

In this paragraph, al-Ghazālī told us clearly that he made three changes in the usual style of expounding logical matters: these are:

Changes in analysing and synthesising some ideas.

Changes in the names of some terms.

Representing some meanings concretely.

These changes are clear if a person compares al-Ghazālī's style here, with his style in his books - Maqaṣid al-Falāsifah and Mi‘yar al-‘ilm(2), in which he used, in general, the style of the logicians.

Here are examples of these changes:

(a) An example of the changes in analysing some ideas is his explanation and analysis of the validity of the figures of syllogism (the criteria), and applying this to the Qur‘ānic and non-Qur‘ānic examples he gave(3).

His way of determining the form of the different figures of syllogism and their rules, is an example of his style in synthesising some ideas(4).

It can be understood, also, from al-Ghazālī's words above "syntheses and analyses", that it is an indication of

(1) Al-Qistās, Chelhot, p. 101; Brewster, p. 111.
(2) Even though al-Ghazālī wrote Maqasid to present the points of view of philosophers and not his own views, we find that that part of it which is devoted to logic is very similar in form and matter to his own book, Mi‘yar al-‘ilm.
(3) See above, pp. 143-145, 150-152.
(4) See above, pp. 141-142, 151-152.
the dialogue, which he used to present his ideas, and in which
the problems and questions arose and appeared as complicated
and without answer. Then he put forward logical answers which
solved these difficulties.

(b) The changes in the names of some of the terms:

Al-Ghazālī changed the names of some main terms in
logic by giving them new names without changing their concep-
tion. The following table shows the names of the terms as
used by logicians and the new names invented, here, by al-
Ghazālī:
<table>
<thead>
<tr>
<th>The Term</th>
<th>The Islamic logician's naming</th>
<th>Al-Ghazālī's naming.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Syllogism.</td>
<td>Al-qiyās al-manṭiqī.</td>
<td>Al-qisṭās al-mustaḥfī</td>
</tr>
<tr>
<td>2 The types of syllogism.</td>
<td>anwā’ al-qiyās.</td>
<td>Mawāzīn al-ma’riфа.</td>
</tr>
<tr>
<td>3 The categorical (predicative) syllogism.</td>
<td>Al-qiyās al-ḥamlī.</td>
<td>Mizān al-tā’ādul.</td>
</tr>
<tr>
<td>5 The second figure.</td>
<td>Ash-shakl a l-thānī.</td>
<td>Mizān al-tā’ādul al-awsāf.</td>
</tr>
<tr>
<td>6 The third figure.</td>
<td>Ash-shakl a l-thālith</td>
<td>Mizān al-tā’ādul al-ağghar.</td>
</tr>
<tr>
<td>7 The (mixed) hypothetical syllogism.</td>
<td>Al-qiyās a l-shartī al-muttaṣīl.</td>
<td>Mizān al-talāzum.</td>
</tr>
<tr>
<td>8 The (mixed) disjunctive syllogism.</td>
<td>Al-qiyās a l-shartī al-munfaṣīl.</td>
<td>Mizān al-tā’ānud.</td>
</tr>
</tbody>
</table>
Al-Ghazālī told us that he did not give these names haphazardly, but he chose them because there is a kind of relation between these names and the concepts of the terms to which these names are given. For instance, he called the kinds of syllogism, *mawāzin* (criteria), because there is something common between them and the usual *mīzān*, i.e. the material balance, which shows where there is excess or deficiency\(^1\). He called the categorical syllogism *mīzān al-ta‘ādul* (the criterion of equivalence), because it has two premises like the two pans of the balance, and the middle term like the arm which is connected with the two pans\(^2\). This *mīzān* has three types: great, middle and small; the first is called great, *akbar*, because we can conclude, by using it, all kinds of propositions (A, I, E, O); the small, *al-aṣghar*, is called so because we can conclude, by using it, the particular propositions (I, O); the middle, *al-awsat*, is so called because it comes between the great and the small, i.e. it gives us, sometimes, universal conclusions, but also negatives (E, O)\(^3\).

In the same way, Al-Ghazālī justified the names he gave to the other two kinds of syllogism (nos. 7, 8 in the table).

If we look at these new names, in the table above, we will see that some of them are taken from the words of the Qur’ān\(^4\) (1,12 and the word *mīzān*). Some others occurred in some of the books on logic, not as terms, but as explanatory words\(^5\) (nos. 7, 8). The rest of the names are ordinary

---

\(^1\) Al-Qistās, Chelhot, p. 47; Brewster, p. 12.
\(^2\) Ibid., Chelhot, p. 67; Brewster, p. 50.
\(^3\) Ibid., Chelhot, p. 51; Brewster, p. 35.
\(^4\) We already mentioned the verses where these words occurred, see above, pp. 132-133.
\(^5\) The words: *luzum* and *‘inad* from which the words *talāzum* and *ta‘āmud* can easily be derived, were used by Ibn Sīnā in *al-Najāt*, (p. 50) as explanatory words.
words familiar to all learned people in his time. In general we can say that these new names are chosen to give the impression that they denote conceptions which are familiar and not strange to educated Muslims who were dealing mostly with the religious sciences, especially jurisprudence.

The reason for the change in the names of these terms, about which there was no dispute among the authorities, is explained by al-Ghazālī in his book, al-Qiṣṭās al-Mustaqīm:

"I have been led to reclothe them (the criteria) with different names, because of what I had known about the weakness of your natural disposition and the obedience of your mind to imagination. I saw that you are so mistaken by appearances that were someone to give you red honey to drink in a cupping-glass, you would not be able to bring yourself to take it, because of your revulsion towards the cupping-glass, and because your mind is too weak to make you know that honey is pure in whatever receptacle it may come... So I descended to your level, giving you the medicament in a water carafe, providing you thus with a cure. I was gracious towards you, as a doctor with a sick man. If I had said to you that this was a medicament and had given it to you in a medicine cup, your nature would have prevented you from accepting it; even if you had accepted it, you would have been grieved by it and would hardly have taken it. This is my excuse for changing these names and inventing others. He who is aware of it will agree with it, and he who is not aware of it will deny it"(1)

This quotation is not difficult to unravel:

the doctor is al-Ghazālī himself, 
the sick person is his disputant and those who are like him, 
the sickness is that they judge things from appearances only, 
the medicament and the honey are the criteria (logic), 
the receptacle is the style by which one expounds the facts, or ideas, 
the cupping-glass is the style of the philosophers in expounding logic, and 
the water carafe is al-Ghazālī's style here.

These symbols will become clearer when they are compared with the circumstances in al-Ghazālī's time(1), especially the attitude of the educated people towards logic, and also when they are compared with the real aim of al-Ghazālī and his attitude towards logic. This will be done at the end of this chapter(2).

(c) Representing some meanings concretely: Al-Ghazālī used a pedagogical style based on an epistemological theory(3), in expounding the criteria of knowledge. By this style, he was able to give concrete examples to make the abstract ideas easy to understand for those who are not capable of understanding such ideas abstractly.

The theory on which this style is based is that the faculty of imagination in man is prior to and stronger than the faculty of reasoning, and it takes the person a long time to be able to use the latter faculty, without the effect of the faculty of imagination.

An example of this style here, is the comparison he

(1) See below, pp. 178-179. 
(2) See below, pp. 179-181. 
(3) See above, pp. 83-93.
made between the material balances and the kinds of syllogism 
(i.e. the criteria). The categorical syllogism is like the 
balance with two pans. The two premises are the pans and the 
middle terms is the balance arm(1). The criterion of concomi-
tance (i.e. the hypothetical syllogism) is like the steelyard 
since one of the arms (the premises) is much longer than the 
other(2).

In fact, al-Ghazālī, here, is a teacher who wants to 
give his students a difficult lesson. So he used concrete ex-
amples to inculcate the subject.

8. The general method of rational discussions:

Al-Ghazālī's style in expounding the syllogism here 
is an example of a general method applied by him in expounding rational matters. This method differs from that which was used by the philosophers in general.

The philosophers used to present their own rational discussions firstly, and, after drawing their conclusions, quote the suitable texts from Scriptures (Qur'ān and Ḥadīth) (al-
manqūl, literally: the transmitted) to give their results a kind of support. So reasoning was first and revelation fol-
lowed.

Al-Ghazālī's method was in contrast. He brought what is scriptural, al-manqūl, first, then what is rational(dis-
cussion), al-ma'qūl, after, so that this discussion looks as if it is based entirely on the verses. Al-Ghazālī wanted to ex-
pond the syllogism and to make people take an interest in log-
ic, so he began with some verses of the Qur'ān and made them

(1) Al-Qistās, Chelhot, p. 68; Brewster, p. 48.
(2) Ibid., Chelhot, p. 69; Brewster, p. 49.
the bases on which he expounded the syllogism. He intended to make people accept such rational ideas more easily, while the other style (that of the philosophers) made people dislike rational discussions and brought harm to philosophers and those who used their methods.

All this is clear in a short paragraph from the conclusion of his book: Al-Qisṭās al-Mustaqīm, where he says to those who are sincere:

"Beware lest you change this method, nizām, and extract these meanings from their clothing. I have taught you how to embellish that which is rational, al-ma'qūl, on the basis of that which is scriptural, al-manqūl, so that it will be more quickly accepted. Beware of making that which is rational, al-ma'qūl, the basis and that which is scriptural, al-manqūl, subsequent and, later, that is odious and detestable. God has commanded you to put aside all that which is odious and to dispute in the best way. Beware of differing from this command, for you will perish and cause others to perish, and you will go astray and lead others to go astray."(2)

This quotation gives the impression that al-Ghazālī was sure that this method was not only appropriate but also would be successful.

---

(1) Al-Ghazālī did not say who "those who are sincere" were, but a careful look at the context can lead to the conclusion that they are those who know logic and deal with rational discussions (i.e. philosophy and kalam).

(2) Ibid., Chelhot, p. 101; Brewster, 111-112.
9. The co-operation between logic and the Qur’ān in the fields of knowledge and faith:

Al-Ghazālī in his book, Al-Qīsṭās al-Mustaqīm, mentioned in several places, the great importance of the Qur’ānic criteria in the fields of knowledge and faith. We have already shown that these criteria are the types of syllogism. Therefore, what is said about these criteria is said, in fact, about the syllogism, which is the main part of traditional logic.

According to al-Ghazālī, the Qur’ān and these criteria should be used for the following reasons:

(a) The syllogism is the only method by which we can achieve certain knowledge in all sciences. This is an Aristotelian theory(1), which al-Ghazālī expressed as follows: Every knowledge which is not primary, must necessarily be derived by means of these criteria (types of syllogism) by one who knows them, even though he may not perceive it(2).

(b) The co-operation between logic and the Qur’ān, if used in the correct way, leads to the progress of sciences and to the discovery of all possible sciences.

(i) By using syllogism (the criteria) we can infer, from the primary knowledge, a new, high and more complicated knowledge. Al-Ghazālī expressed this idea as follows: "The knowledge which is evident and primary is the bases for that which is obscure and hidden - it is its seed. However, only the one who possesses the skill of sowing and ploughing may bring it to fruition and make it conclusive by the union of

---

(1) Aristotle's theory of science is expounded in his book, "Posterior Analytics"; see above pp. 69-70.  
(2) Al-Qīsṭās, Chelhot, p. 78; Brewster, p. 68.  
(3) Ibid., Chelhot, p. 53; Brewster, p. 23.
the premises (1).

(ii) The Qur'ān contains what al-Ghazālī called the keys of sciences, mafātīh al-‘ulūm, by which he means the verses of the Qur'ān which indicate different sciences. For instance, the verses which mention the sky and the stars indicate astronomy. Those which mention illness and remedy indicate medicine (2)...etc. These kinds of verses, according to al-Ghazālī, are the starting points of every science. Al-Ghazālī claimed that if we think about these verses (the keys) and we use the criteria of the Qur'ān, i.e. the syllogism, we will discover every possible science and extend the knowledge we had. In this sense, al-Ghazālī said that all sciences are potentially found in the Qur'ān but not actually. The Qur'ān is described as 'light' because it contains the criteria, which like light, see by themselves and other things are seen by means of them (3).

It can be accepted that some verses of the Qur'ān indicate some sciences. However, it is difficult to see how a person can discover new theories and establish new sciences from such ambiguous indications. This has not happened in the history of science, and is not expected to happen, because the methods which led to the discovery of new branches in science and new theories differ from al-Ghazālī's method.

(c) The Qur'ān reminds us of and calls our attention to the right path which leads to certain knowledge. This right path is using logic and the syllogism (the criteria). Al-Ghazālī

---

(1) Ibid., Chelhot, p. 53; Brewster, p. 23.
(2) Al-Ghazālī gave several examples to these verses which he called: the keys of sciences, in his book, Jawahir al-Qur'ān.
(3) Al-Qistās, Chelhot, p. 91: Brewster, p. 92.
realised this fact (according to him) from the Qur'ānic verse: "Those who fear God, when a visitation of Satan troubles them, remember, and then see clearly"(1). In his exposition of this verse, al-Ghazālī said: "Your path is to learn from me how to use these criteria (syllogism) and to fulfil their conditions. If some question is difficult for you, you should submit it to these criteria...Whoever knows how to use the criteria as I do, and remembers them, reflects upon them and returns to them time and again, will finally gain absolute certainty that he is not mistaken"(2)

(d) Logic proves the truth of the Qur'ān and the truth of Muḥammad's prophethood, according to al-Ghazālī. He describes the way with which he achieved this belief. Firstly, he discovered and extracted the criteria of knowledge from the Qur'ān and understood them well. Secondly, he applied them (criteria) to the knowledge found in the Qur'ān. Then he had the conclusion that the knowledge comes with these criteria. Thus he had a necessary knowledge of the truth of the Qur'ān and Muḥammad's prophethood(3).

10. General discussion and comments:

In this section we are trying to comprehend and evaluate al-Ghazālī's attempt to extract logic from the Qur'ān, which takes up the greatest part of his book, Al-Qīṣṭās al-Mustaqīm, and to connect this attempt with the circumstances in his time.

---

(1) Qur'ān, VII/201.
(2) Al-Qīṣṭās, Chelhot, p. 79; Brewster, pp. 69-70.
(3) Ibid., Chelhot, p. 81; Brewster, pp. 73-74.
(a) The circumstances of writing *al-Qistās*: (1)

It is without doubt that al-Ghazālī would not have written such a book (*al-Qistās*) if logic had not been of considerable importance to him. This attitude is that logic is the only method of research which is suitable for all sciences: natural sciences, philosophical science and religious sciences among which is jurisprudence.

Al-Ghazālī believed in this idea at an early period of his intellectual life, and then began planning to declare and advocate it among the educated people of his time. The seeds of this attitude and the attempt to propagate it are found in his book: *Maqāsid al-falāsifah* (The Aims of the Philosophers), even though this book was written as a representation of the ideas of philosophers. These seeds grew and became strong in the rest of his books on logic (2). The majority of the educated people in al-Ghazālī's time, and before, were concerned with jurisprudence, as mentioned by al-Ghazālī in his books, *al-Iḥyāʾ* (3) and *al-Mī'yar* (4).

The attitude of those people towards logic was: suspicion, uncertainty and hostility in general. The slogan they raised against the philosophers and logicians - who practises logic courts heresy - reveals the true nature of their attitude. "There had been remarkably little contact between the two sects" (5), (scholar-jurists and philosophers), and

---

(1) *Al-Qistās* is one of the stages through which al-Ghazālī propagated his attitude to logic, and so the circumstances of writing *al-Qistās* are mainly the relevant circumstances of his attitude to logic. See above, pp. 51-53.

(2) See above, pp. 28, 54-56.

(3) *Iḥyāʾ*, vol.1, pp. 4-5.

(4) *Mī'yar*, p. 60.

"owing to the widespread popular and scholarly suspicion of
the philosophers, it was difficult for any scholar-jurist to
refer to any philosophical work in his writings"(1).

On the other side, there was the Ta'limites sect,
the party of "authoritative instruction", which the Seljuq
government considered as a dangerous movement to them and to
Islam. This government sought the help of al-Ghazali to re­
fute this party(2).

The Qur'an was the main reference to which all the
sects referred, to support their views and ideas. In this
environment, al-Ghazali became famous as a scholar-jurist, a
theologian, mutakallim, an opponent of the philosophers and
a defender of Islam.

(b) The purpose of this book (al-Qistas):

This book, (al-Qistas), is a step in a work-plan
laid down and put into practice by al-Ghazali to achieve a
specific aim. This aim was to change the prevailing atti­tude
towards logic within the circles of educated people. Al­
Ghazali did not want, only, to change this attitude, but to
make those people accept logic as the only methodology approp­
riate to all sciences, which also included jurisprudence. In
the last step of his work-plan, al-Ghazali asserted, in the
introduction of his book on usul al-fiqh, al-Mustasfa, that
there will be by no means, any confidence in the knowledge of
one who does not master logic(3).

(1) Ibid., p. 66.
(2) Al-Ghazali wrote several treatises against the Ta'limites
ideology, using the Aristotelian logic in his attack, Cf.
J. van Ess, LSIT, p. 47. For more information about the
Ta'limites and the Batiniyyah, see: The Encyclopaedia of
In this book, al-Ghazālī had another purpose which, is not separate from this main aim. It was to give an example of the method which the "sincere intellectuals" should follow in introducing their ideas to people, (i.e. begin with the mangūl). (1)

The refutation of the ideas of the Ta'limites, while important, was a secondary purpose, as he said in the conclusion of the book: "This is, my brothers, my conversation which I had with my companion. I have narrated it with all its obvious and hidden shortcomings... so that you may profit, by these accounts, being aware of things which are more important than the correction of the school of Ta'lim, which was not my purpose, it is you to whom I show concern but listen my neighbours"(2).

Farīd Jabre mentioned the purpose of al-Ghazālī's books on logic in general. Of al-Qisṭās he said that al-Ghazālī used only the form of the Aristotelian logic "as an instrument to organise the religious creed"(3) and to enable him to present that creed (Islam) in an organised manner compatible with reason(4). This view is not altogether sound. Rather it seems that al-Ghazālī's aim, as already noticed, was to change the prevailing attitude towards logic and convince scholars to use it as the only method, especially the scholar-jurists.

(1) See above, pp. 173-174.
(2) Al-Qisṭās, Chelhot, p. 101; Brewster p. 111. "It is you... my neighbours", iyyaka aʻnī wa ismaʻī ya jaratī, is an Arab proverb mentioned when a person addresses in his speech another person while he is really addressing (in his speech) a third person.
(4) Ibid., Chelhot, p. 91.
It was not easy to realise such a purpose in the time of al-Ghazālī. It was, in fact, an attempt to change a strong public view which had dominated Islamic society for about four centuries. That is why al-Ghazālī laid down a plan making use of the circumstances. This is very clear from this book.

(c) The circumstances and the book:

It is necessary to take some account of the circumstances existing when al-Ghazālī wrote al-Qīṣās al-Mustaqām, and then see how he made use of them. They involve:

(i) Al-Ghazālī's own attitude towards logic.

(ii) The attitude of the majority of the educated people towards logic.

(iii) The wide fame of al-Ghazālī as a scholar-jurist, theologian and a defender of religion.

(iv) The strong presence of the Ta'limites, which the government in power was working to destroy, by every possible means.

(v) The support given by the government to al-Ghazālī and its need for his writing in order to defend it against its opponents.

(vi) The attitude of Muslims, both ordinary and educated, towards the Qur'ān, i.e. that it is absolutely true.

Al-Ghazālī made use of all these circumstances. He made the refutation of the Ta'limites his secondary purpose so he pleased the government and became certain of its protection of him against public opinion. He chose a title for the book whose words were taken from the Qur'ān, and showed, in the book, that logic is found in the Qur'ān. In order to make
the matter of the book look familiar to educated people, especially the scholar-jurists, he used a style in which he expounded the rules of syllogism and changed the terms used by the logicians and clothed them with an Islamic clothing. Thus the readers, especially the scholar-jurists, would not have the same distaste for the logical material as they would have had if the terms of the philosophers had been in front of them. He attributed the laying down of logic to God Who taught it to the prophets from whom men had learned. This does not contradict, according to al-Ghazālī, the fact that other people knew it before al-Ghazālī (the Greek and Muslim philosophers). He did so, in order to create in them an inclination for logic and to assert to them that logic was not something strange to religion (Islam). Then he proceeded towards his true purpose asserting that logic is the only methodology in all sciences: natural sciences, philosophical sciences and religious sciences, among which is jurisprudence(1). If one has any doubt about this, one should remember that al-Ghazālī himself—who was famous for his supremacy in jurisprudence, theology (kalām) sufism, asceticism and his defense of religion—had achieved faith in the truth of the Qurʾān and the prophethood of Muḥammad(2) only by means of logic... So he seemed to demonstrate that those who were hostile to logic should change this attitude. For they were not more eager for religion than him, and they should begin learning logic from the sources which were not suspicious where they would find the details. These books are al-Ghazālī's books: Miʿyār alʿīlm and Miḥakk al-Nāzar, which he recommended in this book (al-Qīṣās).

(1) Al-Qīṣāṣ, Chelhot, p. 82; Brewster pp. 74-75.
(2) Ibid., Chelhot, p. 81; Brewster, p. 74.
(d) How al-Ghazālī's style fitted his aim:

Al-Ghazālī succeeded in bringing logic into the circles of the religious sciences, especially jurisprudence, while the philosophers, who are the authorities in logic, failed to do such a thing. This is something which was noticed by a Spanish logician - a century after al-Ghazālī - called Ibn Tumlūs (ca.1160-1223). He said that al-Ghazālī did not present his studies on logic under the name of logic, but under other names like the criterion (Mi'yar), the touchstone (Miḥakk) and balance (Qistās). He did so to avoid the hostility of the scholar-jurists and their attack on him. So, his books became widespread in contrast to al-Fārābī, although the books of the later (al-Fārābī) were closer to Aristotle's logic and more correct. (1)

It is clear from the words of Ibn Tumlūs that the style, with which al-Ghazālī presented logic, is the important reason for his success in popularizing logic.

(e) The inspirations of the Qur'ānic verses and al-Ghazālī's interpretation in al-Qistās:

We have already shown how al-Ghazālī expounded the facts of logic through some Qur'ānic verses such as the verse: "Summon thou to the way of the Lord..." (XVI/125), and that he found that the word 'balance', mīzan, in the verses he quoted, means a balance of knowledge.

In the discussion of al-Ghazālī's interpretation of them, the extent that these verses convinces us of the claims made by al-Ghazālī for them (i.e. that logic is found in the Qur'ān), has already been questioned (2).

(1) Ibn Tumlūs, Al-Madkhal li Ṣunā'at al-Maṭīq, p. 3.
(2) See above, p. 138.
Al-Ghazālī, in fact, interpreted these verses by giving them wider application than the actual context of the words can give.

In this interpretation, al-Ghazālī made use of a psychological fact concerning the Qur’an. It is that the Qur’ānic verses inspire some of those, who study the Qur’an, with meanings beyond what the context of the words can give. This psychological fact was and still is accepted among the Muslims as one of the aspects of the wondrous nature of the Qur’an.

If we accept that this happened to al-Ghazālī, and consider that these verses inspired him with the interpretations he gave in al-Qisṭās, we will find that accepting this does not contradict what has been asserted, here, about al-Ghazālī’s method and aim in his interpretations of the verses: This can be elucidated in the light of psychology, which tells us that such inspirations when they come to one’s mind, are affected by the dominant element in one’s thinking. It is obvious that logic and changing the attitude towards it was the dominant element in his thinking. Thus it is possible that the aim and the method were clear in al-Ghazālī’s mind before writing his book: al-Qisṭās. When he came to the realisation of this aim and the application of this method, he found these verses, which inspired him through being capable of being interpreted in accordance with logic, and so they were suitable for his purpose.

Therefore, if we examine, from a purely objective point of view, al-Ghazālī’s interpretation of the Qur’ānic verses and his claim that logic is found in the Qur’an according to this interpretation, we will see that the verses and
the interpretation are not convincing. However, if we pay regard to them in terms of their psychological effect and the inspirations they had upon the reader who believes in the Qur'ān, then we will find that al-Ghazālī's method and style were successful.
CHAPTER FIVE.

LOGIC AND JURISPRUDENCE,
ACCORDING TO AL–GHAZĀLĪ.
Logic and Jurisprudence according to al-Ghazālī.

1. Introduction:

Al-Ghazālī was known as the first to introduce logic systematically and publicly into the science of the principles of jurisprudence (usūl al-fiqh)(1).

He considered the types of arguments known in logic as the only valid forms of argumentation, because, according to him: "All that is said which provides evidence (dalīl) and give reasons (ta'ālīl), in all branches of the sciences are reduced to the types we have already mentioned, (i.e. the types of arguments in logic). If it is not reducible to them, it is not evidence" (2).

So, he asked the students and the teachers of jurisprudence to study logic. Moreover, he gave, in the introduction (3) of his well-known book on usūl al-fiqh, al-Mustasfā, a statement from which it can be understood that he considered mastering logic as one of the conditions of legal reasoning, (ijtihād)(4).

In his books on logic, al-Ghazālī gave examples to the different types of inference from jurisprudence. In his books on usūl al-fiqh, he tried to apply some rules of logic to jurisprudence.

The main parts of logic - according to the Muslim logicians - were:

---

(1) See above, p. 58.
(2) Al-Ghazālī, Al-Mustasfā, vol.1, p. 49.
(3) This introduction is an abridgement of Aristotelian logic - as known in the circles of Islamic philosophers - written in a style which differs from that of the logicians, in order to appear familiar to the scholar-jurists.
(4) Ibid., p. 10.
- the study of definition (al-ḥadd) which aims to achieve exact concepts (tašavwurāt), and
- the study of demonstration (al-burhān or al-hujjah) or inference (istidlāl) which aims to achieve certain assents (tašdīqāt).

Because logic was treated in this way, we will proceed in our approach - to show what parts of logic al-Ghazālī introduced into usūl al-fiqh - in accordance with this division of logic. To do this requires to point out what was practised by the scholars of usūl before al-Ghazālī, which had connection with the above-mentioned parts of logic, and to give a short notice about the main discussions in them.

We think that it is not without advantage to give a brief idea about the emergence of usūl al-fiqh.

2. The emergence of usūl al-fiqh:

A l-Shafi'i (150-204A.H.) was the first(2) to lay down the science of usūl al-fiqh and to make it an autonomous discipline. His achievement in usūl al-fiqh has been described as similar to that of Aristotle in logic(3).

A l-Shafi'i found copious material on fiqh which was in dispute, and there was no criterion which could be depended on to evaluate the different points of view for a given problem. So, he studied carefully this juridical material and

---

(1) This division is declared in al-Ghazālī's books on logic (Mi'var, pp.68-69,265; Mustasfa, vol.1., p.11, Miḥḥak,p.6) and nearly all the arabic treatises on logic. (See: F. Rosenthal, Knowledge Triumphant, p.207).

(2) Ibn al-Nadim in Al-Fihrist reported that Abū Yūsuf compiled a separate work in which he collected many rules of argumentation in Fiqh, but this work was lost. (See: Abd al-Wahhab Khallaf, 'ilm Usūl al-Fiqh, 10th ed. Kuwait, 1972, p.17.

extracted "a comprehensive canon by which sound from unsound views could be distinguished"(1). This canon was usūl al-fiqh.

This science "is the examination of revealed evidence from which the laws and legal obligations of the Muslims are derived"(2). Its aim "is to make known how to derive legal judgements from the evidence"(3)(adillah). The main subjects in this science are: the legal categories (al-āhākām al-sharī’iyah), the evidence (al-adillah), how to derive the legal categories from the evidence and the qualities of the person who undertakes the responsibility of derivation.(4)

The main sources for the revealed evidence, on which the majority of Muslim jurists agreed are: the Qur’ān, the Sunnah, general consensus (ijmā‘) and analogy (qiṣās)(5). There are other sources of evidence, on which there was no general agreement among Muslim jurists, which are well-known. Among them are: discretion (istibdā‘), unrestricted utility or interest (al-maslahah al-mursalah), retention (istīshāb), custom (al-‘urf) and the religious law in the previous religions (shar’ man qablana).(6)

It would seem appropriate to examine whether the usūl al-fiqh of al-Shāfi‘ī are in any way affected by logic. In this connection, the following points should be borne in mind.

---

(1) Ibid., p. 348.
(4) Ibid., p. 7.
(6) A. Khallāf, ‘Ilm usūl al-Fiqh, p. 44.
Some Arabic translations of the main books of the Organon were available during his lifetime(1). Therefore, it is quite possible that he had read them. There is a report somewhat doubtful - that al-Shāfi‘ī had studied Aristotle and the Greek philosophers in the original Greek(2).

However, nobody has claimed that al-Shāfi‘ī was influenced in his usūl by, or used, Aristotelian logic. Further, it has been reported that al-Shāfi‘ī considered the inclination "to Aristotle's language" as a reason for the ignorance of some people and the cause of differences between them.(3). It seems likely, that the phrase "Aristotle's language" implicitly refers to his logic. In addition, the method and the field of discussions in usūl al-fiqh and in logic are different.(4)

The similarity between the two disciplines is found between tanmāl in logic and qiyyās in usūl al-fiqh. However, this is only in two points: (a) in the form, i.e. both of them are inferences from a known particular to another unknown by virtue of a sort of resemblance(5); (b) in the degree of certainty, i.e. the conclusions in both of them are probable(6). Besides these two points the whole discussions of analogy and qiyyās are different. It is also true that the idea of qiyyās had existed in

---

(1) A l-Shāfi‘ī died in 820 A.C.-204 A.H., he wrote the first copy of his work on usul, Al-Risalah in Baghdad in 812-823; at this time some Arabic translations were available in Baghdad(see more details above pp.9-11 ). See also: Abu Zahrah, A l-Shāfi‘ī, pp.27-28, A.S.An-Nashshār, Manāhiṣ al-Baḥth, pp.20-22, and N.Rescher, The Development of Arabic Logic, pp.29-30.

(2) A.S.An-Nashshār, Manāhiṣ, p.69. This story was reported by F. Al-Rāzi; Abu Zahrah in his work: A l-Shāfi‘ī, pp.49-51 rejected it.


(4) See below, pp. 204-212.


the circles of the scholar-jurists long before 1-Shafi'î. Some scholars even tried to prove that qiyās was used by the Prophet and recommended in the Qur'ān. (1)

From these points, it is difficult to conclude that 1-Shafi'î was influenced in usūl al-fiqh by Aristotelian logic. The similarity between qiyās and analogy is not sufficient for such a judgement, because analogy has, in the Aristotelian logic, very little importance as an argument. It was treated as an imperfect induction and an argument from example (2). Aristotle devoted to it less than two pages in his Organon, which is more than a thousand pages. The Muslim logicians treated analogy in the same way (3); while qiyās in a 1-Shafi'î's work on usūl al-fiqh occupied a large part of it (4) and was considered by him as one of the basic kinds of evidence in Islamic law. Moreover, he declared that ijtiḥād can only be performed exactly by qiyās (5). Furthermore, the rules and conditions of qiyās as set out by 1-Shafi'î have no connection with Aristotelian logic.

It seems probable that the emergence of the science of usūl al-fiqh with 1-Shafi'î was a natural response to the need for a systematic method to help in deriving legal judgements from the texts of the Shari'āh.

3. Definition:

(a) Definition in Aristotelian Logic:

Definition, according to Aristotle, is "the making

---

(1) A. Khallāf, 'Ilm Usūl al-Fiqh, pp. 54-59.
known of an essence" (1), or "an expression stating the essence of a thing" (2). This is the "definition of the essential" or the "real definition" (3). There is another kind of definition called "nominal definition" which "gives a verbal definition, it is just like the explanation of a word" (4).

The real definition of a species "is to be defined by enumerating a collection of attributes essential to it" (5). In other words, the real definition consists of genus and differences. This can be achieved by using Plato's method of division (6) but after reversing it i.e. by composing or "building up attributes, one by one, till we have a collection co-extensive with the thing to be defined" (7).

In defining a thing, three things should be kept in mind:

(i) to take from its attributes only what belong to its essence;

(ii) to take them in the right order i.e. from determinable to determinate;

(iii) to take all the essential attributes which can distinguish the defined from everything else (8).

If we can apply these three things, then we will have a definition which: (a) expresses the essence of the object to be defined; (b) fits solely and entirely to the object to be defined; (c) will be mutually interchangeable with the object to

---

(2) Aristotle, Topica, 1.5.101b.
(3) A. Dumitriu, History of Logic, vol. 1, p. 159.
(4) Ibid., p. 160.
(5) W.D.Ross, Aristotle, p. 52.
(6) This way is called by Plato "the descending dialectic" which "aims at the analysis of the genus in its species, showing its natural components, without, however, reducing it to an extensive collection but preserving its logical unity". A.Dumitriu, History of Logic, vol. 1, p. 114.
(8) W.D.Ross, Aristotle, p. 52.
be defined, i.e. having the same extension(1).

Definition according to the Islamic logicians.

If we come to Islamic logicians, we find the Aristotelian theory of definition with a little more elaboration. Ibn Sīnā gave the definition as: "words (qawl) stating the essence of a thing; they contain all its fundamental constituents (muqawwimāt); indeed, it should be composed of its genus and differences"(2). The aim of definition, according to Ibn Sīnā is not the ability to distinguish it in whatever way but the acquisition of the real concept of a thing, i.e. its essence(3) By saying this, Ibn Sīnā was criticising the scholar-jurists and the mutakallimūn's method of definition, which will be discussed later. This is the complete or real definition. There is another kind of definition in which one uses the proper and accidents of the thing instead of the differences; this kind is not complete(4).

(b) Definition in Stoic Logic(5):

Definition "was one of the most highly debated problems"(6) in Stoic Logic. In general, they rejected the Aristotelian theory of definition which emphasised that definition should state the essence of the defined.

Diogenes Laertius told us that definition, according to the Stoics, "is a sentence that denotes its object, analytically and completely"(7). According to Chrysippus it "is the rendering of a particularity"(8).

---

(1) Ibid., p. 52; and A. Dumitriu, History of Logic, vol. 1, p. 159.
(2) Ibn Sīnā, Isharat, vol. 1, pp. 204-205.
(3) Ibid., p. 206.
(5) We depend mainly, in this section here, on the excellent work of Anton Dumitriu, History of Logic, vol. 1.
(6) Ibid., p. 231.
(7) Ibid., p. 231.
(8) Ibid., p. 231.
The Stoics did not seek to state in definition the essence, as Aristotelian logic; they considered the real definition, which states the reality of an existing things, simply, as "a sum-total of attributes that enable us to differentiate the respective thing from another\(^1\). This is clear in Chrysippus' words: "The definition is what is proper to the defined thing"\(^2\).

So, the aim of definition according to the Stoic logic is the distinction of the term to be defined by stating its particularity or what is peculiar, unique to it; while in the Aristotelian logic, the aim is to state the essence of the thing defined.

However, in spite of this main difference, there are some similar points: (a) Both Aristotle and the Stoics enunciate the rule of the reciprocity\(^3\) of definition. The Stoic definition "is a sentence in which the subject and the attribute are interchangeable\(^4\)". (b) Both of them used the method of division to help in stating the definition. The logicians of the Stoic School "developed widely the division of genera, the classification and sub-classification of the genus\(^5\). They distinguished several types of divisions:

(i) Counter-division: in which the thing is divided by opposite qualities, for instance by means of negation: all things are good or not good\(^6\).

---

(1) Ibid., P. 231.
(2) Ibid., p. 231.
(3) See above, p. 142-3. This rule was known later on as "Pascal's condition of definition". See: A. Dumitriu, History of Logic, vol. I, p. 159.
(4) Ibid., p. 231.
(5) Ibid., p. 232.
(6) Ibid., p. 232.
(ii) Sub-division: in which we divide the previous division. For example: to divide those which are not good - in the previous division - into evil and others indifferent

(iii) Distribution: the disposition of general according to their place. For instance: from the good things some related to the soul, others to the body

(c) Definition in the science of usūl al-fiqh before al-Ghazālī:

From the beginning, there was a need, in the science usūl al-fiqh, to use definitions.

The aim of definition, according to the scholar-jurists, was to distinguish the term to be defined from all other terms, and the main condition they made for exact definitions is that definition should be co-extensive and co-exclusive (muttārid wa mun'akis) with the defined, i.e. if the defined is present the definition (the qualities used in it) will be present and if it is absent, the definition will be absent.

Ibn Taymiyya (1263-1328) criticised those whose aim in definition is to achieve "the essence of the thing to be defined," saying that al-Ghazālī was the first to introduce the Aristotelian method into usūl ad-īn wa al-fiqh, (i.e. 'ilm al-kalām and 'ilm usūl al-fiqh). All the authorities in the different schools of kalām and the followers of the four Imāms he added, agreed that definition aims to distinguish the defined

(1) Ibid., p. 232.
(2) Ibid, p. 232.
(3) See: A.S.An-Nashshār, Manāhij, pp. 82-83.
(6) The four Imāms are: Mālik, Abu-Ḥanīfa, a-Shafī'ī and Ibn Ḥanbal.
from all others (1) and "most of them did not accept to mention
in the definition what is common between the defined term and
other terms no matter whether it is called genus or accident,
but they defined it, using what is inseparable (yulāzim) from
the defined co-extensively and co-exclusively (tardan wa‘aksan) (2).
This description of definition according to the scholars of usūl
al-fiqh is repeated by al-Tahānawi (d. 1158 A.H.) in his well-
known encyclopaedia (3).

From what has been mentioned it can be said that the
conditions of definition according to the science of usūl al-
fiqh are:

(i) It should distinguish between the term defined
and all the other terms.

(ii) It should contain neither more nor less than
the connotation of the term defined, or as it is said in Arabic
(jāmi' mání').

These conditions leave scope for more than one definition
of a certain term, the thing which al-Ghazālī criticised - as
we shall see below. (4)

(d) Definition according to al-Ghazālī:

Definition according to al-Ghazālī is "what is said
in answer to the question...in the form: What is it?
(ma'huwa?)". There are three kinds of answers to this ques-
tion which are the three kinds of definition:

(i) The nominal definition (al-ḥadd al-lafzī): it
explains the word to be defined by giving another word, clear-
er and easier to understand. For example, if one does not

(1) Ibid., p. 15.
(2) Ibid., p. 15.
(3) Muhammad A. al-Tahanawi, Mawsū'at Iṣṭilāḥāt al-'Ulūm
(4) al-Ghazālī, Mi'yar, p. 269; see below, p. 198.
know what is ('aqār), we can say to him it is the wine (khamr) if he knew wine (1). The word or term can have several nominal definitions. (2)

(ii) The descriptive definition (al-ḥadd al-rāmī): it distinguishes the term to be defined from all other terms with the condition that it should contain neither more nor less than the connotation of this term, no matter whether we mentioned — in this definition — the essential, the inseparable or the accidental qualities (3). For example, if we want to define wine in this way, we can say: "It is a liquid which makes froth and then changes to sourness, and it is preserved in an earthen wine jug (al-dann)." (4) The sum total of these qualities is equal to wine so that from it no wine is excluded and nothing except wine is included (5).

This kind of definition does not state the essence of the term defined, and it leaves room for other definitions of a term (6).

(iii) The real definition (al-ḥadd al-hāqiṣ): it is the definition which "states the essence of a thing" (7). This can be achieved by "stating the nearest genus and all the essential differences." (8). For example: wine "is an intoxicant beverage squeezed out of grapes" (9). This definition reveals the essence of wine because it contains all its essential qualities (10).

(1) Al-Ghazālī, Mīhakk, p. 92 and Mustaṣfā, vol.1, p.28.
(2) Al-Ghazālī, Mīhakk, vol. 1, p.12.
(5) Ibid., p.12.
(6) Al-Ghazālī, Mustaṣfā, p. 28.
(8) Al-Ghazālī, Mīyār, p.268.
(10) Ibid., p.13.
There is only one real definition of a certain term (1). Al-Ghazālī considered this kind of definition as the only one to be sought because it states, besides the essence of the thing defined, what the other two kinds of definition can state, i.e. the explanation of the term and distinguishing it from all other terms. (2)

The nominal definition has very little importance—according to al-Ghazālī—because it is just replacing a word with another word. It tells nothing about the essence of the term defined (3).

The descriptive definition (al-rasmī) is the kind which was used by the scholars in usūl al-fiqh and kalam, whose aim was only to distinguish the defined term. This kind can be described as associated with the religious sciences (ilmī), even though it does not aim to state the essence.

The real definition is "the definition of the essential" according to Aristotelian logic. It is according to al-Ghazālī the complete definition because it realises, besides its aim, the aims of the other kinds of definition. "Those who are sincere (in research) seek, from definition, the conception of the essence of the thing...and not just the distinction." (6)

(e) What al-Ghazālī introduced into the science of usūl al-fiqh regarding the study of definition:

Al-Ghazālī asked the scholars of usūl al-fiqh to follow in their definitions, the method of real definition which

---

(1) Ibid., p. 28, and Mi'yar, p. 269.
(2) Al-Ghazālī, Mi'yar, p. 267.
(3) Al-Ghazālī, Mustaṣfa, vol. 1, p.12.
(4) Ibid., p.12.
(5) See above, p.192.
(6) Al-Ghazālī, Mi'yar, p. 267.
is that of Aristotelian logic, i.e. by mentioning the genus and the differences. This could put an end to the existing differences in definitions among the scholar-jurists because, as already mentioned (1) there is only one definition of a term, using this method.

Al-Ghazālī confessed that definition in this way (i.e. the real definition) is difficult (2), and this is the reason according to him, that the mutakallimūn and the scholars of usūl al-fiqh were content in their definitions, with the distinction of the defined term from all other terms, which is far from knowing its essence (3).

To state a "real definition" it is necessary to know the five universals - genus, species, difference, proper and accident - and how to differentiate between the essential, inseparable and accidental qualities of a thing. To know all this, it is necessary to know about words and their relations with meanings...etc. In other words, to state a real definition, one should know all the topics treated in the study of the concepts (al-tasawwrat) in Aristotelian logic. Al-Ghazālī told the reader in al-Mustaṣfā that the study of these topics is useful in both "definition and demonstration" (4).

Al-Ghazālī was not content just to ask the students of usūl al-fiqh to study these topics in order to be able to state their definitions by the method of "real definition". He adopted several techniques to ensure that his ideas would influence students of fiqh and readers of his books in general.

(1) See above, p.198.
(2) Al-Ghazālī, Mi‘yar, pp. 281-283, and Mustaṣfā, p.15.
(3) Al-Ghazālī, Mi‘yar, p. 283.
Among the techniques were: (i) Writing these topics in a style which made them look familiar to the students of fiqh (1); (ii) using juridical examples to elucidate these topics (2); (iii) Putting forward examples of definitions stated by philosophers, to enable students to examine them so that they would acquire some experience in stating definitions (3); (iv) Defining most of the terms, in his books of usul al-fiqh according to the method of Aristotelian logic, and showing, sometimes, how the real definition should be made.

An example of the method he used to show how the "real definition" should be stated, was his definitions of the five ahkâm or legal categories, obligatory (wâjib), recommended (mandûb) permissible (mubah), reprehensible (makrûh) and forbidden (hârâm).

The steps, according to which al-Ghazâlî proceeded in stating the definitions of these terms are:

(i) He specified the field according to which the terms are going to be defined, i.e. it is here fiqh and not kalâm or philosophy (4).

(ii) He examined the words to be defined and found

(a) that they designate accidents and not substances (5);

(b) and that they designate a certain kind of accidents which are acts (6);

(c) and that they designate the acts of those who are legally responsible (al-mukallafûn) and not mad people or animals;

(1) This is a common quality which appears in all his writings on logic.
(2) This is found in all his works on logic, without exception.
(3) Al-Ghazâlî, Mi'yar, p. 284. He gave the definitions of 76 philosophical terms. See: Mi'yar, pp. 285-308.
(4) Al-Ghazâlî, Mustasfa, vol. 1, p. 27.
(5) Ibid., p. 27.
(6) Ibid., p. 27.
(7) Ibid., p. 27.
(d) and that they designate the acts of those who are legally responsible with regard to the speech of Revelation (khiṭāb al-shar'), and not with regard to the acts being known or created or acquired or predestined etc. (1)

(iii) Then he examined the acts of those who are legally capable, with regard to their relations with the speech of the Revelation and found that they are three divisions:

(a) What is related to the speech of the Revelation in regard to the choice and whether it is of equal weight to the act or to leave it. This is the permissible (mubah) (2).

(b) What is related to it with regard to whether doing the act is preponderant over leaving it. This is sub-divided into two:

(i) An act which the shar' enjoins and makes its omission subject to punishment. This is obligatory (wajib).

(ii) An act which the shar' recommends without making its omission subject to punishment. This is recommended (mandūb).

(c) What is related to it with regard to whether leaving it is preponderant over doing it. This is sub-divided into two:

(i) An act which the shar' has discouraged without making its commission a subject to punishment. This is reprehensible (makrūh).

(ii) An act which the shar' forbids and makes its commission subject to punishment. This is forbidden (haram) (3).

In his introduction of al-Mustasfa, he gave these definitions as a means of indicating the technique to be employed to give "real definitions". Later in the book, he

(1) Ibid., p. 27.
(2) Ibid., p. 27.
(3) Ibid., pp. 27-28.
repeats these definitions but this is in the context of the discussion of five *ahkām* as elements in *usūl al-fiqh* (steep. 202a).

In al-Ghazālī's opinion, these are all the main *ahkām* and nothing else is possible, because the analytical division into genera and species cannot lead to any other conclusion, i.e. other kinds (1). On this basis, al-Ghazālī criticized some scholar-jurists who used other names, for the *ahkām*, without noticing that they denote the same meanings which he had stated: For example: they tried to differentiate between words like *wājib* and *fard* while they are synonymous (2). He agreed that *wājib* can be sub-divided into two: certain (*maqūl*) and probable (*maznūn*). But, according to him, it is wrong to call one *fard* (i.e. the first) and the other *wājib* (i.e. the second) (3). Words like *mahdūr*, *ma'ṣiyah* and *ḥaram* are, also synonymous and denote the same meaning (4).

From what has been said, we can summarise the ideas, which al-Ghazālī introduced into the science of *usūl al-fiqh* - concerning the study of the concepts (*mabḥath al-taṣawwurāt*) - in the following points:

(i) He wanted the aim of definition to be: stating the essence of the term defined.

(ii) The definition should contain only the essential qualities of the term defined, i.e. its genus and differences.

(iii) Using the method of division to help in stating the definition properly.

(iv) He tried to make the topics of logic look attractive and interesting to the students of *fiqh* and the scholar-jurists in general, and to demonstrate their need for these topics.

(2) Ibid., P. 66.
(3) Ibid., p. 66.
(4) Ibid., p. 28.
The following table summarises the steps taken by al-Ghazālī to arrive at the 'real definition' of the five ḥukmām.

The words to be defined.

The Accidents

Substances.

Acts.

Not acts.

Of those who are legally capable.

Those who are not legally capable.

With regard to the speech of revelation.

Not with regard to the speech of revelation.

Doing it is preponderant.

Leaving it is preponderant.

There is punishment for leaving it.

Obligation (wājib)

There is no punishment for leaving it.

Recommended (mandūb)

There is choice and equal weight between doing and leaving.

Permissible (mubāh)

There is no punishment for doing it.

Reprehensible (makrūh)

There is punishment for doing it.

Forbidden (ḥārām)
It is clear from what has been mentioned - concerning the aim of definition - that the aim, according to the scholars of usūl, before al-Ghazālī, and the aim, according to the Stoics are exactly the same, i.e. the distinction. Then al-Ghazālī came and substituted it with the aim according to Aristotelian logic i.e. stating the essence.

It is clear, also, that scholars of usūl were content to state in their definitions the qualities which were enough to distinguish the term from all other terms. This is, also, what is found in the Stoics' theory of definition. Al-Ghazālī refused to state in the definition anything except the essential qualities; i.e. he applied the Aristotelian method.

However, the scholars of usūl, before al-Ghazālī did not use the method of division, which had been employed by both Aristotle and the Stoics. It was al-Ghazālī who introduced it into usūl al-fiqh. The method of division is not, originally, Aristotelian or Stoic, it is Platonic. Plato called it "the descending dialectics" or "division." It aims at the analysis of the genus in its species, showing its natural components. This way was transmitted to Muslims through Aristotle and perhaps directly from Plato's works.

(1) See above, p.195.
(2) See above, pp.193 - 194.
(3) See above, pp.197 - 198.
(4) See above, pp.198 - 199.
(5) See above, pp.195 - 196.
(6) See above, pp.193 - 195.
(7) See above, pp.197 - 198.
(8) See above, pp.192 - 193.
(9) See above, pp. 192, 194.
(10) See above, p.194.
(11) See above, pp.199 - 200.
(13) Ibid., p. 114.
Al-Ghazālī, like Aristotle, used this way to serve his purpose. However, as it appears from the definitions of the five ahkām al-Ghazālī was acquainted with the developments of the method of division employed by the Stoics, i.e. the counter-division, the sub-division and the distribution\(^1\).

(4) Inference:

(a) Inference in Aristotelian and Stoic Logic:

The kinds of inference according to Aristotle are three, syllogism, induction and the argument from example.

(i) The syllogism has been mentioned throughout this work. The general definition, of the syllogism, given by Aristotle is repeated in books of Logic by Muslims, such as Ibn Sīnā and al-Ghazālī. Aristotle expounded the categorical syllogism while the Stoics were mainly interested in the hypothetical and disjunctive syllogisms. The Muslim logicians followed the Greek commentators in regarding all these developments as purely Aristotelian.

(ii) Aristotle treated induction, but briefly, as a method to reach a conclusion by enumeration of all particulars and using them as a middle term in a syllogism; these are his words: "now induction, i.e. the syllogism arising from induction, consists of proving the major term of the middle term by means of the minor\(^2\), in other words, induction is the "ascending from the particular to the universal, in the sense of recognising the universal in the particular\(^3\)"; this is Aristotle's example:

Man, horse and mule live long lives,
All the animals without gall are man, horse and mule,
therefore,
All the animals without gall live long lives.\(^4\)

---

\(^1\) See above, pp.194-5. See also al-Ghazālī, al-Mustaṣfā, vol.2, pp.320-321, where he used sub-division and distribution of the wajib.


So, induction, according to Aristotle, is not exactly a method independent from the syllogism, but it is - as he called it - "syllogism by induction" (1).

Ibn Sīnā spoke about induction as a separate method from syllogism, but, according to him, it "does not bring about correct knowledge" (2), it brings about probable knowledge only. He defined it as "to judge the universal with what is found in its particulars" (3).

Al-Ghazālī expounded induction in more detail and in a manner very close to the modern one (4); and he applied it to jurisprudence (5), even though he was still faithful to Aristotle's doctrine - as we shall see below (6).

(iii) Argument from example is called analogy. Aristotle paid very little attention to it. He defined it as follows: "example, then is inference from part to part (not from part to whole or vice versa), when both fall within the same class and one is well known" (7).

The conclusions we achieve by this method are not exact knowledge. They are probable or "nearer to knowledge" (8), (i.e. exact).

This kind of argument is justified by reducing it to the form of a syllogism. Aristotle gives an example which shows how he treats this kind of argument:

(2) Ibn Sīnā, Ishārat, vol. 1, p. 368.
(3) Ibid., p. 367.
(5) Al-Ghazālī, Mi‘yar, pp. 162-163.
(6) See below, pp. 228-229.
(8) Ibid., p. 155.
"let A be evil, B aggressive war on neighbours, C that of Athens against Thebes, D that of Thebes against Phocis. If we want to show that the aggression of Athens against Thebes was evil, we must first know that the aggressive war on neighbours is evil. Evidence of this is obtained from similar cases, e.g. the aggressive war of Thebes on Phocis. Assuming then that aggressive war on neighbours is evil, and that the attack of Athens on Thebes was aggressive war on neighbours, it follows that the attack of Athens on Thebes was evil. That C is B and that D is B are obvious (both being instances of aggressive war on neighbours), that D is A is obvious (the attack on Phocis being disastrous for Thebes); that B is A is proved by means of D. More than one term like C may be used to prove that B is A" (1).

Muslim logicians knew this kind of inference, they called it "al-tamthil"; Ibn Sīnā defined it as follows: "to try to judge a thing by a judgement known in a similar (thing). It is a judgement on a particular in the same manner as it is in another particular which coincides with it in a general meaning (ma'na jami')." "This is what the people of our time know as giyās" (3).

This is a reference to the scholar-jurists (al-fuqahā' and their use of giyās. He also gave some of their terminology concerning giyās, and their equivalents in the terminology of the logicians. They called the particular on which we pass the judgement (al-maḥkūm 'alayh) as a derivative branch (far'), the known particular as the origin (aşl) and what is

---

(2) Ibn Sīnā, Isharat, vol. 1, p. 368.
(3) Ibid., p. 368.
common to them as "ma'na va 'illah" (1).

Ibn Sīnā considered the evidence by this method (al-tamthīl or al-qīyās) as "weak - da'īf" (2).

(b) Inference in the Science of Usūl al-Fiqh before al-Ghazālī:

The main sources of all the legal categories (ahkām) in Islamic law are - as already mentioned (3) - the Qur'ān, the Sunna, the general consensus (ijma') and analogy (qiyās).

Inference in the science of usūl al-fiqh is the different methods by which we can derive or infer the legal categories of the different cases or events.

The main concern of this section, is with these sources in usūl al-fiqh, which has a clear relation with logic, that is analogy (qiyās).

(i) The definition of qiyās:

- Ibn Ḥazm (d.456 A.H.-1064 A.C.) defined qiyās - according to all those who considered it as legal evidence (4) - as applying the qualification of that on which there is a text (nass) or - according to some scholars - a general consensus (ijma') to that on which there is no text or general consensus, because the two have a common reason ('illah) which produced the legal categories of the former. (5)

(ii) The elements of qiyās. All the scholars of usūl agreed that qiyās has four main elements:

- the principle (al-āsl): it is the event or problem on which there is a fixed text (nass) concerning its legal category (hukm),

(1) Ibid., p. 369.
(2) Ibid., p. 369.
(3) See above, p. 189.
(4) Ibn Ḥazm is not among those - he rejected qiyās very strongly; his attitude is called: Ḥāhirism.
- the branch (al-far'): it is the event or problem on which there is no fixed text concerning its legal category. Thus, it is that to which the legal category of an asl may be applied.
- The reason (al-'illah): it is the attribute on which the legal category of the asl is based, and because of its existence in the far', that far' is made equivalent to the asl with regard to the legal category of the asl,
- the legal category (al-ḥukm): it is that of the asl which is mentioned in the text and is required to be the legal category of the far'.

For example, drinking nabīth (date wine) is qualified as forbidden (ḥaram) because it shares with the drinking of wine in the attribute of causing intoxication. The four basic elements of giyās, according to this example, are:
- the asl is drinking wine (its legal category is mentioned in a text),
- the far' is drinking nabīth (there is no text mentioning its legal category),
- the 'illah is causing intoxication (it is found in both of them).
- the ḥukm is being forbidden (it is the legal category of the asl).

The scholars of usūl al-fiqh discussed every element in great detail and laid down conditions for each one of them. In short, they are:

* The asl and the far': The important condition of the asl is that its legal category (ḥukm) should be mentioned in a text (i.e. Qur'ān or Sunna), and for the far' that there

(1) A. Khalīf, 'Ilm Usūl al-Fiqh, p. 60.
is no legal category for it in any text or in any general consensus. They will both have a common attribute or link which is the 'illa(1).

* The hukm: In order to apply the legal category of the asl to the far', by analogy (qiyas), this legal category must fulfil some conditions of which the important ones are:
  (a) The hukm of the asl must be acknowledged by a text and not by general consensus or by qiyas.
  (b) The hukm of the asl must be from the kind whose causes can be understood.

The legal categories (ahkam) are of two kinds. (1) Those in which the causes are not understood by man, but only by God, like the number of the rak'at in the prayers(2).
(ii) Those in which the cause can be understood by man like the prohibition of wine and usury (riba)(3).

The legal categories of the first kind cannot be applied to new cases (i.e. furū') by qiyas(4).

* The 'illa: The cause (al-'illa) is the important element in qiyas. The discussions of the problem of the cause in usul al-fiqh are of a purely logical nature, and thus of greater concern to this study.

(i) The definition of the 'illa:
This has already been mentioned(5).

(ii) The conditions of the 'illa:
The scholars of usul al-fiqh deduced these conditions from the examination of the causes on which there is a fixed text. They disagreed on some of the conditions. However, there is general agreement on the most important of these conditions:

(1) Ibid., p. 61.
(2) Ibid., p. 62.
(3) Ibid., p. 62.
(4) Ibid., p. 63.
(5) See above, p. 208.
(a) The 'illah should be a precise description (wasf mun-dabiṭ) which can be recognised in both the asl and the far'. For example, the traveller is allowed to break the fast, the aim of this is lessening the hardship, but this is not the 'illah of this qualification (hukm) because "hardship" is a relative thing which differs from one person to another. Thus, the 'illah is the travelling which can be determined objectively.(1)

(b) The 'illah should be effective on the hukm, i.e. the hukm should be made - according to the belief of the Mujtāhid - when the 'illah happens and because of its presence only and not because of anything else(2).

(c) The 'illah should be an appropriate description (wasf munāsib) i.e. this description (i.e. 'illah) should realise or be in accordance - according to the belief of the mujtāhid - with the aim of the Sharī'ah i.e. bringing about advantage and avoidance of disadvantage. For example: the deliberately intended homicide (al-qatl al-'amd) is appropriate to the liability of retaliation (qiṣṣās), because in basing retaliation on deliberately intended homicide, there is a preservation of peoples' lives.(3)

(d) The 'illah should not be a description confined, only, to the asl. It should have the possibility of being realised in other cases, and so the ahkām which are specifically associated with the Prophet cannot be used as principles (usūl) in any qiṣṣās (4).

(e) The 'illah should be co-extensive and co-exclusive (muttariḍ wa mun'ākis) i.e. if the 'illah is present, the hukm

(1) A. Khallāf, 'ilm Usūl al-Fiqh, p. 69.
(2) Ibid., p. 68; A.S. al-Nashshārī, Manāhij, p. 94.
(3) A. Khallāf, 'ilm Usūl al-Fiqh, p. 69.
(4) Ibid., p. 70.
(5) The scholar-jurists later replaced the two words by a single one: dawaran - rotation - the hukm turns around the 'illah, is bound to its existence and non-existence. See: J. van Ess, LSIT, p. 39.
should be present; and if it is absent the hukm should be absent. For example: when there is a deliberately intended homicide, then there will be a retaliation (qiṣṣa) and when such a homicide is not there, this hukm (i.e. the retaliation) will not be either.

(iii) The methods of determining the cause (masālik al-'illah):

These methods are divided into two kinds. Those which are based on the Qur'an and the sunnah and those which are based on rational thinking. The most important of these methods are:

(a) The texts of the Qur'an and the Sunnah:

If the 'illa of a hukm is mentioned in a text in a specific description, then we should not look for any other description of the 'illa. The causes ('ila) are rendered in the texts in different degrees of clarity. Sometimes, they are distinct - others are allusive.

(b) General consensus:

If there is a general agreement among the scholars of usūl at a specific time that a description is the 'illa of a hukm, then this description should be fixed as 'illa of this hukm for ever. These two methods can be classified in the first kind of methods (i.e. which is based on the texts)(1)

(c) Investigation and disjunction (al-sabr wa al-taqsim):

There are two steps in this method. In the first, we have to enumerate all the descriptions which are possible to be a cause ('illa) of the hukm of a specific case (asl). In the second step, we examine each one of them, in the light

(1) Ibid., p. 76.
of the conditions of the 'illah then exclude the unsuitable one; and consider what fulfil these conditions as the 'illah(1).

(d) The coextensiveness and coexclusiveness (al-tard wal-'aks):

This term has been mentioned as one of the conditions of the 'illah. It is also - as used here- a method of determining the 'illah, i.e. when we find that a description is coextensive and coexclusive with the hukm, then it is the 'illah(2). For example, grape juice, before it becomes intoxicating, is not forbidden. If it becomes intoxicating, it becomes forbidden. If again it becomes not intoxicating, then it is again not forbidden. The scholars of usūl al-fiqh also called this method the rotation (al-dawaran) because the legal category, (prohibition for example) turns around and the 'illah (the intoxication) is bound to its existence and non-existence(3).

(c) Inference in the Science of Usūl al-Fiqh, according to Al-Ghazālī:

(i) the main topics of usūl al-fiqh:

The science of usūl al-fiqh, according to al-Ghazālī, is like a tree which needs care to be fruitful(4):
- The fruit is the legal categories (ahkām),
- The tree is: the Qurʾān, the sunnah, general consensus and the evidence of reason(5). These are the sources of all the legal categories.
- The exploiter is the mujtahid, by whose effort the legal

(1) Ibid., pp. 77-79.
(3) J.van Ess, LSIT, p. 39. See more details in A.S.an-Nashshār, Manāḥīj, pp.101-103 and his interesting idea in considering this method as equal to the "joint method of agreement and difference" in J.S. Mill's system of the discovery of causes.
(5) Ibid., p. 100.
categories are extracted and derived from the sources.
- The ways of exploitation are the methods by which we can achieve the legal categories\(^{(1)}\). These methods - according to al-Ghazālī are four:

(a) The method of the explicit (ṣarīḥ) texts: it is to examine the different forms of speech (i.e. Arabic) and then draw up the legal category. This needs the mujtahid to have a profound knowledge of the different forms of speech like: the imperative, prohibition, the general and particular etc\(^{(2)}\)

(b) The method of the understood (mafhum) from the texts: it is to examine the meanings implied in the concept of the speech and then draw up the legal category. This also needs a profound knowledge of Arabic and an ability to clarify the meanings of the texts.

(c) The method of what is required (muqtada) by the texts: it is to examine the meaning of the text and see what are the other meanings which follow by necessity from this meaning\(^{(3)}\). For example, if one sells one's house, this means that one was the owner of it, and also that the door of the house is sold.

(d) The method of what is rationally intended (ma'qul) in the texts: it is to examine the text in order to deduce the cause of the qualification (hukm) of a certain case in a fixed text and then draw up the same qualification for other cases - where there is no qualification - which have the same cause. This is the method of giyās. For example, it is reported from the Prophet that the judge should not pass judgement if he was angry. This hukm here, was applied, by the method of giyās, to the cases in which the judge is hungry or ill\(^{(4)}\).

\(^{(1)}\) Ibid., p. 7.
\(^{(2)}\) Ibid., p. 9.
\(^{(3)}\) Ibid., p. 9.
\(^{(4)}\) Ibid., p. 9.
(ii) Dalīl al-‘aql:

The fourth basic source — the other three are Qur'ān, sunnah, and general consensus — is, for al-Ghazālī, the evidence of reason for the original negation (dalīl al-‘aql al-nafy al-aslī).

Al-Ghazālī means, by this phrase, that we know by reason that there were no obligations on people before messengers of God were sent. "The absence of the legal categories (intifā’ al-aḥkām)(1) is the original state. The messengers of God came with different obligations, so we have to leave this original state concerning these obligations, and follow the legal categories which the messengers brought. However, we remain in the original state — where there is no obligation — in all the matters on which there is no evidence from the shari‘ah(2). For example, people were told by the Prophet to pray five times a day and to fast the month of Ramadān, so a sixth prayer and fasting in other months remain in the original state (i.e. the absence of a legal category)(3).

Al-Ghazālī justified this point of view by the following argument. The examination of the legal categories (aḥkām) is reduced to two: the affirmation (of them) or the confirmation of their absence (intifā‘uhā). Reason (‘aql) is not able to affirm them before the sending of the messengers of God(4), but it is able to show that there is no obligation and legal categories until we have a law (shar‘) from God. So, when we know that there is no legal category — for a certain case — in the Qur‘ān or in the Sunnah or there is no

(2) Ibid., p. 218.
(3) Ibid., p. 218.
(4) This idea of al-Ghazālī is the contrary of what the Mu'tazilites believe.
general consensus, and we cannot derive a valid legal category for it from the texts of the Qur’ān and the Sunnah then the legal category is (istišāb al-nafy al-aʿṣlī). This is not not-knowing the evidence but it is knowing that there is no evidence (1).

This kind of evidence is known - before the time of al-Ghazālī - as retention (istišāb), but it was the last evidence from which the mujtahid had to seek a legal category (2); he could use before it, unrestricted utility (al-mašlahā al-mursalah), equity (al-istiḥsān) and the custom (ʿurf). These al-Ghazālī rejects as sources for legal category. However, he did accept the use of (mašlahah) in drawing up a legal category provided it was only taken into consideration in determining the cause (ʿillah) in qiyās (3).

(iii) The qiyās:

Even though al-Ghazālī uses qiyās, he does not consider it as one of the basic kinds of evidence along with the Qur’ān, the Sunnah and the general consensus. It is - as illustrated above - a method of inference by which we derive, from the known cases - in the Qur’ān and the Sunnah-legal categories for new cases.

Al-Ghazālī paid much attention to qiyās, he compiled a separate volume on it (4). This method has a logical nature. It is the most significant area in which al-Ghazālī applied logic to usūl al-fiqh.

Al-Ghazālī agreed with the scholars of usūl on the definition of qiyās as "the affirmation of the legal category

---

(1) Ibid., pp. 219-220.
(2) A. Khallaf, ʿilm Usūl al-Fiqh, p. 92.
(3) See: al-Ghazālī, al-Mustasfā, vol. 1. PP
(4) This volume is: Shīfāʾ al-Ghālī fī bayan al-Shabah wa al-Mukhayyāl wa Masālik at-Taʿlīl; edited by: Hamad Al-Kubaysī, Baghdad, 1971; it consists of 700 pages and it is likely to be the most detailed work written on the qiyās.
of the principle (asl) to the derivative (far) by the reason that they are common in the cause of the legal category ('illat al-ḥukm)'(1) In another place he defined it as: "The transference of the legal category of a particular to another particular by reason of a quality that is common to both"(2) Each of these definitions contains the four elements of qiyās into which the scholars of usūl before al-Ghazālī analysed qiyās.

In his exposition of qiyās, al-Ghazālī treated each element, giving great details and many examples of their conditions. He tried to systematise the juridical material of previous scholars, in a logical manner. The absence of this in their works led him to criticise their views frequently(3). In general, there is little difference between him and the preceding scholars as far as the conditions of each of the four elements is concerned. It is unnecessary to repeat these conditions as they have already been outlined(4). However, attention will be given later to how he understood and justified the validity of qiyās as a method of inference.

(iv) The forms of the theoretical arguments, that are used in juridical matters (masā'il fiqhiyya) which the scholars of usūl consider as analogous (qiyāsiyyah), are — according to al-Ghazālī — three(5).

(a) The argument which is based on causation (burhān al-i'tilāl). It is "to bring together the derivative (far) and the principle (asl) by the copulative cause ('illa)". The

(1) Ibid., p. 18.  
(2) Al-Ghazālī, Mi'yar, p. 170.  
(3) Shifa' al-Ghalil and al-Mustasfa are full of these details and are the example of his systematising of the juridical material; they are also full of criticisms of preceding scholars.  
(4) See above, pp. 207-212.  
(5) Al-Ghazālī, Shifa' al-Ghalil, p. 435.
form of this argument is reduced to two premises and a conclusion(1); you say, for example: "the thief receives the penalty of his hand being cut off (This is one premise), and the body snatcher is a thief (This is the second premise), so, he, (the body snatcher) receives the penalty of his hand being cut off"(2) (this is the conclusion) you can say this example in another way:

Theft is the ‘illah of the hand being cut off, and theft is found in body snatching; so the hand being cut off is obligatory (for body snatching).

The scholar-jurists used to say: body snatching is theft and so there must be the cutting off of the hand(3).

All these forms have the same meaning and "are reducible to the case in which a certain thing comes under a general group"(4), and they have the same form of rational argument where there are two premises and a conclusion, (i.e. categorical syllogism).

If one accepts the two premises, one must accept the conclusion. However, if one denies one of them, then the mujtahid has to prove its truth. If the denied premise was the first (according to the example above) which contains the ‘illah of the legal category and the legal category of the asl, then there is no way to prove it(5), except from the legal evidences (i.e. the Qur'an, the Sunnah and general consensus). Al-Ghazālī expounded in detail, the methods of determining the cause

---

(1) Ibid., p. 435.
(2) Ibid., p. 435.
(3) Ibid., p. 435.
(4) Ibid., p. 435.
(5) Ibid., p. 436; this premise is - according to the terminology of logic - the major premise of the syllogism.
of a legal category (hukm), which are similar, in general, to those which are used by the scholars of usūl before his time. If the denied premise is the second (according to the example above) which contains the cause and the subject of the far', for which we are seeking a legal category, in other words, if the presence of the 'illah in the far' is denied, then this can be proved by one of several ways: by sense experience, custom, language, essential definition or by the texts of the shari'āh.

After expounding all these ways, al-Ghazālī said:

"Our aim is to make clear that all the arguments based on causation (barāhīn al-i'tilāl) are reducible to two premises and a conclusion whose contents are: the claim of a cause ('illah) for a legal category (hukm), the claim of its presence in the case under discussion and deriving the legal category on its ('illah) basis. Then al-Ghazālī gave examples of the arguments with two premises and a conclusion, from the field of philosophy ('aqīliyyāt). After that he came to the conclusion that "juridical matters (fiqhiyyāt) do not differ from the philosophical matters ('aqīliyyāt) concerning that (.i.e. the form which is two premises and a conclusion), except that the ways which bring about probability (ẓann) in the two premises, are sufficient in jurisprudence and not sufficient in philosophy ('aqīliyyāt)."

(2) See above, pp. 211-212.
(3) This premise is the minor premise.
(4) Al-Ghazālī, Shifa' al-Ghalīl, p. 436; al-Ghazālī gave examples of each way of these in Shifa', pp. 436-440.
(5) Ibid., p. 440.
(6) Ibid., p. 441. This is asserted also in Mi'yār al-'ilm, p. 202.
So, Al-Ghazālī considered qiṣāṣ, which the scholars of usūl preceding him used to practice, as composed of two premises and a conclusion (i.e. a categorical syllogism) and the cause ('illah) which is common to both the derivative (fār) and the principle (asl), as the middle term (1). He also compared it with what the logicians called "the argument of why (burhān lima)" (2).

Al-Ghazālī told us that the scholar-jurists, seldom state the qiṣāṣ in the complete form (i.e. two premises and a conclusion), they usually omit one of the premises, which is, mostly, the major, because of its clearness (3). So the conclusion of the qiṣāṣ appears as derived from one premise only, while it is in fact derived from two premises. This omitting of one of the premises is commonly used in books, talks and speech in general (4). So, if the scholar-jurists' evidences can be reduced to two premises and a conclusion (i.e. syllogism) then they will have the force of a syllogism (5).

None of the scholars of usūl before al-Ghazālī, claimed that their qiṣāṣ has all these qualities, which are exactly the qualities of the categorical syllogism.

In fact, al-Ghazālī tried, in his attempt to reduce qiṣāṣ to syllogism to justify the validity of this qiṣāṣ and to rest it on logical bases. He found that it was similar to "the argument from example" (6) in the Aristotelian logic. It was Ibn Sīnā (7), before him, who pointed out that

(1) Al-Ghazālī, Mi‘yar, p. 243.
(2) Ibid., p. 243.
(3) Ibid., p. 178; and al-Ghazālī, Mihakk, pp. 58-59, and see an example of the scholar-jurists style, above, p. 217.
(4) Al-Ghazālī, Mi‘yar, p. 177.
(5) Ibid., p. 178.
(6) See above, pp. 205-207.
(7) See above, p. 206.
similarity. He seems to have studied carefully the Aristotelian exposition and justification of the argument from example(1) and used it to justify the validity of the giyās and to rest it on logical bases. In fact, he gave the matter greater attention(2) than Aristotle, who, as already mentioned, paid very little attention to this kind of inference. He also found similarity between the middle term in the categorical syllogism and the 'illah in the giyās and made use of Aristotle's treatment of it in his justification of the giyās. But in all his treatment of the subject, al-Ghazālī was faithful to the Aristotelian logic and remained within its bounds.  

(b) The argument from indication (burhān al-dalālah or al-istidlāl): It is to infer a legal category of a case or thing by means of an attribute which is not the cause of this legal category, but one of three: either a property, an effect or a similar (quality).  

(i) The inference by the property: the meaning of property of a thing is something which is inseparable from its essence in such a way that it is always found with that thing(3). In this kind we infer the existence of a thing from the existence of its property and its absence from the absence of its property(4). For example; we draw up the legal category that the salāt al-witr (evening prayer of an uneven number of raka'āt) is supererogatory (nāfīlah) because it can be performed on the back of a camel(5).

The property, in this example, is known from the examination of what is known of obligation and supererogation (with regard to prayer) in the Shari'ah(6).

This argument can be reduced to two valid forms of

---

(1) Above, pp. 205-206.
(2) See these details in Mihakk al-Nazar, pp.64-72 and the introduction of al-Mustaṣfa, vol.1, pp.51-54.
(3) Al-Ghazālī, Shifā' al-Ghali̇l, p. 442.
(4) Ibid., p. 441.
(5) Ibid., p. 442.
(6) Ibid., p. 444; and, al-Ghazālī, Mi'yar, p. 162.
syllogism, the categorical and the hypothetical:

The categorical is:

all prayers performed on the back of a camel are supererogatory,

salāt al-witr is performed on the back of a camel, therefore,

salāt al-witr is supererogatory.

In this categorical syllogism, the property is the middle term, but it is not the 'illa in terms of logic, as is the case in the argument which is based on causation. This is the only difference between these two kinds of argument.

The hypothetical form of this argument is

if salāt al-witr is performed on the back of a camel, then it is supererogatory,

but, it is known that the salāt al-witr is performed on the back of a camel, therefore,

salāt al-witr is supererogatory.

The logical justification of the inference by the property is that we can, in the case of the inseparables, infer the presence or the absence of one of them from the presence or absence of the other.

(ii) The inference from the effect: in this kind, we infer the existence or the absence of the cause from the existence or the absence of the effect.

(1) Reducing the categorical syllogism to the hypothetical is easy, as is clear from the above example. The Stoics considered only the hypothetical syllogism and rejected the categorical and they had difficulty, when necessary, of putting a categorical syllogism in the form of a hypothetical. See; A. Dumitriu, History of Logic, vol.1, pp. 242, 244–245.


(3) Al-Ghazalī, Shifa' al-Ghalil, p.441.

(4) Ibid., pp. 441; 444.
The justification of this kind is based on the inseparability of the cause (1) from the effect.

This kind can be reduced to the two kinds of syllogism — the categorical and the hypothetical — exactly as inference by the property. For example, the scholar-jurists used to say: the marriage contract which does not produce freedom to perform normal conjugal rights (al-hill) is invalid and freedom (to perform conjugal rights) is the effect. This example can be reduced to a categorical syllogism as follows:

- every marriage which does not produce freedom (to perform conjugal rights) is invalid,
- this marriage is a marriage which does not produce the freedom (to perform conjugal rights), therefore,
- this marriage is invalid.

In this example we inferred the absence of the cause (i.e. that there is no legal marriage) from the absence of the effect (i.e. that there is no freedom (to perform conjugal rights) (al-hill).

If we want to put this example in the form of a hypothetical syllogism, we say:

- if the marriage does not produce freedom (to perform conjugal rights), then it is invalid,
- but, this marriage does not produce freedom (to perform conjugal rights), therefore,
- it is invalid. (2)

(iii) The inference from the similar: in this kind we apply the legal category of a certain case to a similar one

---

(1) Al-Ghazālī, Shifāʾ, p. 445. al-hill means here that the couple can have legal sexual relationship.

(2) In his exposition to this kind of argument, al-Ghazālī did not mention the hypothetical form, but he said that this argument is similar to that which is based on causation; Shifāʾ al-Ghalīl, p. 441.
not because they are common in the juridical cause ('illah) of the legal category, but because they are similar cases. In jurisprudence, it is sufficient to consider the two cases as similar if they are so, regarding the matter under consideration. For example, man and woman are similar concerning the matter of manumission ('itq), but they are not similar in a matter like inheritance (mirāth). So, it is important in this kind to make sure that the two cases are similar in the matter under consideration. Thus, in order to clarify whether the child should pay alms (zakāh) or not, al-Shafi‘ī argued that if the person paid zakāt al-fitr, he should pay all the alms, and the child pays zakāt al-fitr — at least it is paid on his behalf by his legal guardian — so ordinary zakāt had to be paid on behalf of the child by the legal guardian because both ordinary zakāt and zakāt al-fitr are forms of financial worship, and so both should be similar with regard to the state of childhood.

Al-Ghazālī did not reduce the statement of this evidence here to one of the forms of inference he recognised. However, according to the main rule he laid down — which declares that all the arguments or evidences which are not reducible to one of the forms of inference are not valid — this evidence can be reduced to a hypothetical syllogism:

the one who pays zakāt al-fitr, should pay all forms of zakāt,
the child pays zakāt al-fitr, therefore,
the child should pay the forms of zakāt.

(1) Ibid., p. 446.
(2) Ibid., pp. 448–449.
(3) Al-Ghazālī, al-Mustaṣfa, vol.1, p.49; Miḥākk, p.44.
The justification of this kind is that the legal category of a thing is a legal category of that which is similar and equal to it(1).

(c) The reductio argument (burhān al-khulf):

In this kind we affirm a legal category or an attribute of a case or a thing by proving that its contradiction is invalid(2). There are two kinds of this argument:

(i) The investigation and disjunction (al-sabr wa al-taqsīm): this is exactly the same as the disjunctive syllogism in logic, in which we invalidate some of the possibilities, concerning a case, and so infer the validity of the rest. Sometimes, we have only two possibilities and at others we have more than two(3). For example,

the sale of that which does not yet exist, (bay' al-ghā'ib) (4) is valid or invalid,
but it is not valid, therefore,
it is invalid(5).

In this evidence one had to prove the second premise (the sale of that which does not yet exist is not valid). If we have more than two possibilities we have, in order to prove the validity of one of them, to prove the invalidity of all the others. For example:

the cause of prohibition of usury of wheat is either
that it could be eaten, it could be a form of provision,
it could be measured or, it could be a kind of property (mal),
but the cause is not one of the last three, therefore,
the cause is that it could be eaten(6).

---

(1) Al-Ghazālī, Shifa' al-Ghallāl, p. 441.
(2) Ibid., p. 450.
(3) Ibid., p. 451.
(4) E.g. fruit on a tree before it has grown.
(6) Ibid., p. 452.
(ii) In this kind we invalidate all the possibilities in a case and then infer the invalidity of this case. For example, if the \( \bar{I}l\;\bar{a} \) (oath of abstinence from intercourse by the husband)\(^{(1)}\) is a divorce, then it should be a direct declaration (\( t\breve{a}gr\breve{u}h \)) or an indirect declaration (\( k\breve{i}n\breve{a}ya \)). But \( \bar{I}l\;\bar{a} \) is neither of these. Therefore, \( \bar{I}l\;\bar{a} \) is not a divorce.

This example, as al-Ghazālī said, "is reduced to two premises and a conclusion"\(^{(2)}\), i.e. syllogism. We can put it in this form:

\[
\begin{align*}
\text{every divorce is declared either directly or indirectly,} \\
\bar{I}l\;\bar{a} \text{ is not a declaration (of divorce) either directly or indirectly,} \\
\text{therefore,} \\
\bar{I}l\;\bar{a} \text{ is not a divorce.}
\end{align*}
\]

The following table summarises the main topics in \( u\=s\;u\ell\;a\=l-f\=i\=q\=h \) and the kinds of inference used in it, according to al-Ghazālī:

---


\(^{(2)}\) Al-Ghazālī, \textit{Shifā' al-Ghalīl}, p. 454.
The Science of Usul al-Fiqh.

The Exploiter - Al-Mujtahid

The Ways of Exploitation - the main Ways of Inference.

What Produces the fruit. - The Basic Evidences.

The Fruit - The Legal Categories.

The Imitator (al-mugallid)

The Muqtahid.

What is rationally understood by the texts (ma'qul-an-nass).

What is required by the texts (muqta-da-an-nass).

The Explicit texts (sair-an-an-nass).

The Evidence of Reason for the Original Negation.

The General Consensus.

The Sunna.

The Qur'an.

The Forbidden.

The Reprehensible.

The Permissible.

The Recommended.

The Obligatory.

The Kinds of Arguments used in usul al-fiqh.

the reductio

The Invalidation of the Whole.

The Investigation and Disjunction.

from the indicate

the similar

The form of Categ. Syllogism ('illah - the middle term)

the effect

the inseparable property

based on causation

(d) What al-Ghazālī introduced into the science of usūl al-fiqh regarding the study of inference:

From what has been said about the study of inference in Aristotelian logic, the science of usūl al-fiqh before al-Ghazālī and what he has said about it, it becomes easy to discern al-Ghazālī's contribution in logic to the science of usūl al-fiqh. It is clear that al-Ghazālī had introduced the Aristotelian theory of inference as it was known in the Islamic world, with some Stoic elements (1) into the science of usūl al-fiqh.

Al-Ghazālī was able, with his outstanding skill in both logic and the science of usūl al-fiqh to classify the kinds of qiyyās in usūl al-fiqh and to reduce them to the kinds of syllogism. This was done without his appearing to speak a different language from, or use an alien style to, that to which the scholars of usūl were used.

Al-Ghazālī did not reject the qiyyās, which the scholars of usūl practised, and the way they stated it. However, he did make it a condition for the use of qiyyās that the inferences by qiyyās must be reducible to the forms of inference in logic (2).

The implication of this condition is that al-Ghazālī demanded that the scholars and the students of usūl should study logical inference and master its technique.

It was not sufficient for al-Ghazālī to show the the scholars and students of usūl, in his books on usūl, the forms of logical inference and how to reduce qiyyās to one or

(1) See above, pp. 204-207, 212 -225.
(2) See above, pp. 212-225.
more of these forms because he wanted them to be aware of the logical bases of this inference and the logical matters connected with it. So, he compiled for them his books on logic in the style and terminology with which they were familiar. He asked them to refer to these for more details whenever he had to mention logical matters in his books on usūl.

Al-Ghazālī paid much attention to the middle term. In this he was influenced by Aristotelian logic. Thus, he classified the kinds of argument on its bases: when the middle term is a cause ('illah), then we have burḥān al-‘illah, when it is a property, an effect of a similar, then we have burḥān ad-dalālah(2). He also considered the discovery of the middle term, which is the cause ('illah) or the indication (dalālah), as the important step in inference in usūl. By this, he was introducing Aristotle's idea that all kinds of enquiry are seeking a middle term.(3)

Al-Ghazālī also used the method of induction in usūl al-fiqh. He used it as a method by which we sometimes achieve the major premise (it contains the 'illah and the major term) of the syllogism by which we derive the legal category. For example:

the legal category salāt al-witr is supererogatory, is derived from two premises which are:
All (prayers) performed on the back of a camel are supererogatory and
salāt al-witr is performed on the back of a camel.

---

(1) This is clear in Mīhakk and Qistās and the introduction of al-Muṣṭasfa.
(2) See above, pp. 216 - 224.
(3) Aristotle, Posterior Analytics, J.Warrington's edition, pp.232-233; and see more explanation of the idea in W.D.Ross, Aristotle, pp. 53-54.
The first premise here is the major. It is known by the investigation of the different obligatory and supererogatory acts, from which it was found that no obligatory prayer is performed on the back of a camel and only supererogatory prayers can be performed in this way\(^\text{(1)}\).

Al-Ghazālī told us that the more particular cases we investigate, the stronger or the nearer to certainty the general judgement (which will be used as a major premise) will be. \(^\text{(2)}\)

This rule which is known nowadays as "the principle of instance confirmation"\(^\text{(3)}\), was used by Al-Ghazālī as a criterion to choose the legal category which has a higher degree of plausibility if we have more than one. For example, there were two legal categories concerning rubbing the head in lesser ablution (wudu'). One said that it should be done three times because in the lesser ablution (wudu') the hands, the face and the feet are each washed three times. The other said that it should be done only once, because in tayammum (the substitute rubbing in sand when there is no water) and in rubbing the shoes mash 'ala al-khuffayn, we rub only once.

Al-Ghazālī chose the second legal category because he found by induction that rubbing meant in the shari'ah only once. This was deduced from two different particulars or cases; while the first legal category is based on an induction from one case, which is the wudu', even though three different parts of the body were mentioned\(^\text{(4)}\).

\(^{\text{(1)}}\) Al-Ghazālī, Mi'yar, p. 162.
\(^{\text{(2)}}\) Ibid., p. 162.
\(^{\text{(4)}}\) Al-Ghazālī, Mi'yar, p. 162.
This and many other examples were used by al-Ghazālī to introduce logic and the theory of inference into ʿusūl al-fiqh.

5. The Reactions to al-Ghazālī's Attempt: (1)

It is natural that al-Ghazālī's important attempt to mix the main Islamic science, i.e. ʿusūl al-fiqh, with an alien one, i.e. logic, and his view that mastering this alien science was one of the conditions of ijtihād(2), should arouse some kind of reaction from the exponents of ʿusūl al-fiqh.

(a) Negative reactions:

Negative reactions began to appear only a short time after al-Ghazālī's death (505 A.H.-1111 A.C.); Abū al-Wafā' ibn 'Aqīl (d.513-1119) and al-Turtushi (d.620-1226) strongly criticised al-Ghazālī (3). Al-Maziri (d.c. 640 A.H.), al-Nawawī (d.677 A.H. =1278), and Ibn al-Salah (d.643-1245) all from the Shāfiʿī school, attacked al-Ghazālī's attempt and considered it as a deviation from the doctrine of the school to which he belonged (4).

It was reported that Yūsuf al-Dimashqi (d.601 or 611 A.H.) one of the teachers of the Nizamiyya of Baghdad, disapproved of al-Ghazālī's attempt, saying "Abu Bakr, 'Umar and many others, had reached the utmost point of certainty, and none of them had known logic" (5).

In fact, al-Ghazālī's attempt created a difficult problem for the scholar-jurists after his time, because they had to give their formal legal opinions not only regarding his

(1) We made use, in this section, of the documented material available, and the sources mentioned, in the work of: 'Alī Sāmī al-Nashshar, Manāḥīj al-Baḥth.
(3) 'Alī A. al-Nashshar, Manāḥīj, p. 143.
(4) Ibid., p.144. See also: Jalāl ad-Dīn al-Siūṭī, Sawn p. 30.
attempt, but also regarding the situation of logic in general. For example, people began to ask questions about whether it was permissible to learn or to teach logic; whether it was permissible to use the terminology of logic in the books of usūl and to study a book on usūl in which there is some logic. They asked what the duty of the sultan of the time was if there was a person who dealt with studying, teaching or compilation of logic.

These questions were asked to Ibn al-Ṣalāḥ(1) who was a great faqīh in his time. He issued his famous fatwa:

"Logic is an introduction to philosophy, and that which is introduction to evil is evil. Dealing with logic — teaching and learning — is not among those things which the law-giver has permitted to do, or those which the Companions of the Prophet, the followers (tabi‘īn), the Imāms of ijtihād, the worthy ancestors (al-salaf al-ṣāliḥ) and all those who imitated them, deemed permissible"(2).

Regarding the question of using the terminology of logic in the discussions of matters of usūl al-fiqh, Ibn al-Ṣalāḥ said: "This is one of the ugly reprehensible acts and the new stupidities. The legal categories are not in need of logic at all, and what is claimed by logicians regarding definition and demonstration are bubbles with which every person who has a healthy mind is able to dispense, especially those who serve the sciences of the šarī‘ah(3).

When he was asked about the books on usūl in which

(1) Ibn al-Ṣalāḥ, Fatāwā Ibn al-Ṣalāḥ fī at-Tafsīr wa al-Hadīth wa al-Usūl wa al-‘Aqā’id, Cairo, 1348 A.H., p. 43.
(2) Ibid., p. 35; ‘Ali S. an-Nashshar, Manāhij, p. 145.
(3) Ibn al-Ṣalāḥ, Fatāwā, p. 35.
there was some logic, he answered that they were permissible if they were devoid of logic or philosophy (1).

It was the effect of such fatwās that the later books on logic began to devote the first chapter to discussing the question of the permissibility of dealing with logic (2).

The negative reactions to al-Ghazālī’s attempt continued; after Ibn al-Ṣalāḥ, the most prominent opponent was Ibn Taymiyyah (d. 1328). He rejected al-Ghazālī’s attempt in particular and logic in general in a detailed work in which he mentioned that al-Ghazālī was the first (3) to introduce logic into the science of usūl al-fiqh.

Ibn Taymiyyah thinks that al-Ghazālī in the latter years of his life changed his attitude to logic and "censured them (i.e. the logicians) sharply and showed that their method involved ignorance and infidelity, which deserves to be sharply censured" (5). It is "because of what he did during his lifetime and some other reasons that the theoreticians began to introduce Greek logic in their sciences (6).

Ibn Taymiyyah tried to refute logic and logicians in the same way in which al-Ghazālī attacked the philosophers i.e. by presenting their ideas and then invalidating them. So, in the case of Ibn Taymiyyah, his reaction to al-Ghazālī’s

(1) Ibid., p. 32.
(5) Ibid., p. 198. It seems that Ibn Taymiyyah considered al-Ghazālī’s attack and criticism of the philosophers as directed also to their disciplines among which is logic. In fact, al-Ghazālī never attacked logic. His main criticism of the philosophers was that they did not fulfil the conditions of logic in their metaphysical writings. Also in his later works (al-Munqidh (w. 1108) and al-Mustasfa (w. 1109) we find the same attitude to logic.
(6) Ibid., p. 198.
attempt, and to the problem of logic in general, was not to issue a fatwā, as Ibn al-Ṣalāḥ had done but to write a detailed work (i.e. Al-Radd 'alā al-Manṭiqiyyīn.)

Ibn Qayyim al-Jawziyyah (d.751 A.H.) followed his teacher, Ibn Taymiyyah, in his view that there was no need for logic, saying that logic is not an accurate science, and that “it does not enter a discipline without spoiling it and changing its conventions and confusing its foundations(1).” He also rejected the fatwā of some scholar-jurists who considered learning logic as a collective duty (farḍ kifāya).

Al-Ṣān‘ānī (d.840 A.H.) wrote a book, in which he was influenced by Ibn Taymiyyah, criticising the methods of inference in Greek logic(2). Jalāl al-Dīn al-Siyūṭī (d.911A.H.) also wrote a book in which he tried to support his fatwā, prohibiting dealing with logic and kalam.

The reactions of some scholar-jurists against logic continued, but tended to have little effect in the circles of fiqh and Islamic sciences. That is because other well known scholars of the time had begun to show more tolerance towards logic, particularly from the time of al-Subki (d.771 A.H.) up to the present day. (4)

(b) Positive reactions:

The positive reactions to al-Ghazālī’s attempt began to appear, as Ibn Taymiyyah told us, in the way the methods of logicians began to be used in usūl al-dīn, i.e. usūl

---

(4) See below, pp.235 – 236.
al-fiqh and kalam. Some scholars of ʿulūl, he added, began to define their terms by using genus and differences, and reducing their evidences to two premises and a conclusion, i.e. a syllogism, following al-Ghazālī(1) to the extent that they had believed that "definition and demonstration (i.e. according to Aristotelian logic) were an incontestable matter to reasonable people(2)".

Ibn Taymiyyah did not mention any of those scholars by name, but Fakhr al-Dīn al-Rāzī (d.606 A.H.) was mentioned several times(3) regarding particular matters in which he followed the way of the logicians. It can be deduced, from Ibn al-ʿĀlaʾs fatwa, that there were some scholar-jurists already dealing with logic or anxious to study it. There were even some scholar-jurists who issued the fatwa that learning logic was a collective duty (fard kifayah). This fatwa emerged as a result of al-Ghazālī's view that mastering logic was one of the conditions of ijtihād, which is a collective duty.

Ibn Kathīr mentioned that it was due to the influence of Nasir al-Dīn al-Ṭūsī (d.672=1274) that the study of logic and philosophy became widespread(4) because he was in charge of the different institutes of education, and he used to pay the students of logic and philosophy more than

---

(2) Ibid., p. 198
(3) Ibid., pp. 397-399; 402-417.
(4) It can be said in general that the religious schools in Persia and Baghdad introduced logic in their curricula earlier and easier than those in Syria and Egypt; I think this is due, besides other reasons, to the influence of al-Ghazālī's attempt and his widespread fame in these areas.
the students of Islamic sciences (i.e. Qur'ān, Hadīth, fiqh, etc).

It seems to be established that neither Ibn al-Salāḥ's famous and wide circulating fatwā against logic, nor Ibn Taymiyyah's detailed refutation of the logicians were able to stop the course of the positive reactions which al-Ghazālī attempt generated.

The reconciliation between logic and the Islamic sciences was achieved by 'Abd-al-Wahhāb a.-Subkī (d. 711 A.H.) This well-known scholar-jurist of his time issued a fatwā which neither forbade dealing with logic in all cases, nor permitted it in every case. Dealing with logic, according to a -Subkī's fatwā, is forbidden to those in whose hearts the rules of the shari'ah are not deeply rooted, and who do not know the Qur'ān and the Sunnah and the branches of fiqh. However, if a person has all these qualifications, then it is permissible for him to deal with logic subject to two conditions: the first, is to be sure that his belief is very strong so that no opposite argument, whatsoever, can change or shake his belief; the second, is that he should not mix the words of the scholars of the Islamic sciences with those of the logicians. He gave example of al-Ghazalī and Fakhr al-Dīn al-Rāzī who dealt with logic and philosophy but only after they had a complete knowledge of religion. This made each of them an Imām in the religious sciences. Everyone at their level is allowed to deal with logic and philosophy and he will be rewarded by God(1).

This fatwa was a judgement that released logic so that it became able to find an accepted place in Islamic figh and, with some reservations, a place in the circles of Islamic sciences generally. This was because every student or scholar could claim that the conditions of al-Subki's fatwa were realised in his case.

Some of the scholars of Islamic sciences began to repeat this fatwa in their works with more comments and explanation like Ibn al-Akfanī (d. 749 A.H.). The authors of treatises and manuals on logic repeated al-Subki's fatwa too; and the study of logic began to find its way into the curriculum of the religious education.

But, in spite of the growing of the positive reactions to logic, there were some scholar-jurists who still wanted to take logic out of the circles of religious sciences. Thus, in the sixteenth century, there was a scholar like Dāsh Kubra Zādah (d. 963 A.H. = 1555) who still felt it necessary to defend logic and its application in the Islamic sciences (3). Hājī Khalīfah (d. 1067 A.H. = 1658 A.C.) repeated the ideas of Dāsh Kubra Zādah.

Eventually, logic became one of the subjects in the curriculum of religious schools (madrasah) and institutes like al-Azhar and it is still be studied in such places today.

(1) Al-Nashshār, Manahīj, p. 226.
(2) Ibid., p. 226.
6. Discussion and Comments:

(a) The introduction of logic into usūl al-fiqh:

We have already mentioned that al-Ghazālī introduced into the science of usūl al-fiqh two of the main topics of logic - definition and inference. Al-Ghazālī introduced also some particular elements, which are necessary for these main topics, like: the relation of words to their meanings; the attributes of things and their division into essential, inseparable and accidental, the conversion of the propositions and some other matters(1).

It is natural that we would expect al-Ghazālī's writings to reflect the profound knowledge of logic which he had. Thus, his writings on usūl al-fiqh were presented in a well ordered and systematic manner, together with an accurate number of terms.

Al-Ghazālī was aware that he was introducing, for the first time in the history of usūl al-fiqh, elements from logic, but he was careful not to say this overtly. Yet, in spite of this carefulness, he did mention this once in his book, Shifa' al-Ghalil, on the occasion of discussing the point that "some of the causes ('ilal) of the Shari'ā are proved according to the pattern of rational causes(2)".

Although al-Ghazālī introduced elements from logic into the science of usūl al-fiqh, he did not try to deviate from the style which the scholars of usūl before him had practised and used, to that of the logicians. His argument for

(1) All these problems and some others are discussed with examples from the introduction to al-Mustaṣfa.

(2) Al-Ghazālī, Shifa' al-Ghalil, p. 518.

(3) Ibid., p. 532. The causes of the legal categories, which are similar to rational causes, as treated by philosophers and logicians, are like the causes of the penalties. For example: theft is the cause of the hadd (i.e. fixed punishment).
not doing so, was that it was necessary to address people in the language which they understand. This was one of the reasons for the success of his attempt.

The main idea which al-Ghazālī put forward in applying logic to usūl al-fiqh, is that rational matters (sīliyyat i.e. philosophical matters) and juridical matters (al-fiqhiyyat) are reduced to propositions which are similar in form but different in matter and so the form of the methods (i.e. logic) which are used in rational matters can be used in the juridical matters. The main difference between the two matters, concerning the applications of the methods of logic is, that while it is sufficient in the premises of inferences in the juridical matters to be probable (zanniyah), in the rational matters the premises should be certain.

(b) The study of definition:

We have mentioned the similarity between the definition according to the scholars of usūl and Stoic logic and that al-Ghazālī tried to replace the definition of the scholars of usūl with that of Aristotelian logic. Al-Ghazālī had great expectations from Aristotelian logic, because he thought that the Aristotelian theory of definition would make the differences in definition come to an end.

We can positively assert al-Ghazālī's view of definition was based on Aristotelian logic, because, apart from the complete similarity, there is the historical evidence

---

(1) See above, p. 56.
(2) Al-Ghazālī, Mi'yar, p. 202. This principle does not mean that there are no certain premises used in juridical inferences. All the explicit texts are considered and treated, by al-Ghazālī, as certain premises.
(3) See above, p. 203.
(4) See above, pp. 197-198.
(that he read this logic). However, it is difficult to state the definition of earlier scholars of usul was influenced by Stoic logic. Nonetheless, although there is no historical evidence to support such a hypothesis, it is a matter of some interest that the two definitions coincide so closely.

The earlier scholars of usul have a distaste for Aristotelian logic. It was said that they found its spirit alien to that of Islam. Yet it seems, whether consciously or unconsciously, that they did not have the same attitude towards the logic of the Stoics, which is "very different from the Aristotelian one(1)". It is perhaps interesting that Stoic philosophy whose core was its logic "has been explained by numerous historians as a spreading of an Oriental, Asiatic spirit within Greek thinking(2)".

c) The study of inference:

In the introduction of al-Mustasfa, al-Ghazali told us that: "All that is said as evidence and causation, in all the branches of sciences, are reduced to the types we already mentioned (i.e. the types of syllogism: categorical, hypothetical and disjunctive); if it is not reducible to them, then it is not an evidence"(3).

These words can be compared with Aristotle's words in his Prior Analytics: "All conviction is produced either by syllogism or by induction"(4). He means by induction "the syllogism arising from induction"(5).

(2) Ibid., p. 218.
(3) Al-Ghazali, al-Mustasfa, vol.1, p. 49.
AI-Ghazālī's words implied that gīyās in usūl al-fiqh should be reducible to the syllogism, and Aristotle's words implied the same thing concerning the argument from example(1).

The important part of the gīyās in usūl al-fiqh, is discovering and determining the cause (al-‘illah). Thus the scholars of usūl were interested in the methods of discovering both it and its conditions. AI-Ghazālī accepted most of what the earlier scholars of usūl had said concerning the cause (‘illah). Indeed, when he tried to apply the forms of syllogism to gīyās, he found in the ‘illah a great help. It could easily be considered as the middle term of the syllogism and still have the same importance. In a way, its importance was increased because, according to Aristotle, the discovery of new middle terms was the important step in the progress of any science(2). AI-Ghazālī did not find any difficulty in reducing the examples of gīyās, used by the preceding scholars of usūl, to the fully expressed syllogisms (i.e. two premises and a conclusion) in which the ‘illah appeared as a middle term. He found, in the enthymeme syllogism(3) the justification for the scholars of usūl not stating their examples of gīyās in the form of two premises and a conclusion.

So, what AI-Ghazālī had done with regard to the introduction of the Aristotelian theory of inference into usūl al-fiqh, did not appear, in the eyes of many scholars of usūl,

(1) See above, pp. 205–206, 218.
(2) W.D.Ross, Aristotle, p. 53.
(3) An enthymeme is a syllogism abridged in expression by the omission of one of the constituent propositions. The most common form in which syllogistic arguments are met with is the enthymematic. J.Welton, A Manual of Logic, vol. 1, p. 387.
as a change in the essential nature of the discipline. This seems likely to be the reason that his books on usul were not refused, but rather accepted as excellent and systematic works on the subject.

Al-Ghazālī was aiming at reducing the giyas, (1) to make the validity of the giyas rest on firm bases, i.e. on the bases of logic.

*********************************

Al-Ghazālī's knowledge of Aristotle's books on logic in their Arabic translations, can be considered as a fact, because the translations of the Organon were available in Baghdad where he was a teacher in the Niẓāmiyyah College and began his study of philosophy (2). His knowledge of the books of al-Qarābī and Ibn Sīnā on logic is obvious.

As a result of this knowledge, al-Ghazālī became one of the faithful propagandists of Aristotelian logic in the Islamic world. This is what made him attempt to introduce logic into Islamic science, i.e. usul al-fiqh.

It has been said, by Muslim scholars in the past and modern scholars in the West, that Aristotle's logic represents the spirit of the Greek language (3) thought and philosophy. This was the argument of many scholar-jurists in refusing to deal

(1) Robert Brunschvig in his article: Logic and Law in Classical Islam, said giyas "was far from being able to be reduced each time to the plan: wine is intoxicating beverage; now, all intoxicating beverages are forbidden; therefore, wine is forbidden", p.18. As we have already mentioned, al-Ghazālī did find it easy - and it is so for everyone who knows logic - to reduce every giyas to a syllogism.

(2) W. Montgomery Watt, Muslim Intellectual, p. 201.

(3) This was said by Abu Sa'id al-Sirāfī (280-368/893-979) in the debate which took place in Baghdad in the salon of the vizier, Ibn al-Furat, in the year 320/932 between al-Sirāfī and Mattā Ibn Yunus (d.328/940), the logician. The text of the debate is preserved in: Abu Ḥayyān al-Tawhīdī, al-Imtāʿ wa al-Muʾānasah, ed. Ahmad Amin and Ahmad al-Zayn (3 vols. Cairo, 1939-1944), vol.1, pp.108-128.
with logic, which, in their view, represented a different language and metaphysics from those of Islam.

If this be true, it has to be asked whether al-Ghazālī was aware of this view when he made his attempt to introduce logic into the science which represents, more than any other discipline, the spirit of Islam. The answer is in the affirmative, because this idea had been frequently discussed among the educated people for a long time. This answer can be inferred also, from his attack on the philosophers in which he declared the neutrality of logic towards doctrines and religions.

If this is the case, then we have two possible explanations for al-Ghazālī's attempt. The first is to say that he did this with evil intention. This possibility is far from reality, because the whole intellectual life of al-Ghazālī shows great faithfulness to Islam and the defence of it. Therefore, we have to reject this explanation. The second is to say that he did this with good intention. This explanation is the closer to reality and it is supported by the same evidence by which we rejected the first possibility.

Therefore, al-Ghazālī tried to introduce, into the Islamic sciences, this discipline alien in its origin to Islam (i.e. Aristotelian formal logic) denuded from its matter (i.e. the Greek philosophy and metaphysics). Then he tried to clothe it with Islamic matter. In this, al-Ghazālī was trying to Islamicise this alien element (logic) so that it would not appear strange and anomalous to the Islamic sciences.

Al-Ghazālī did this to bring about positive effects for both scholars of usūl and the science of usūl itself.
It would give assistance to the scholars to free them from blind adoption and imitation of the view of the preceding masters(1) and it would help to make the science of *uṣūl al-fiqh* a more systematical and methodical discipline, by minimising the points on which there was difference of opinion.

This attempt realised some positive effects. An important one is that it made room for logic side by side with the Islamic sciences in the curriculum of religious education. The scholars of *uṣūl* also began to compile their works in a more systematic manner(2) and define the terms more accurately. However, the decline of Islamic culture in general, which began a short time after al-Ghazālī and the closing of the door of *ijtihād*, made it difficult for any real progress, in the Islamic sciences in general and *uṣūl al-fiqh* in particular.

Beside all this, al-Ghazālī's attempt to introduce logic into *uṣūl al-fiqh*, can be considered as unique in the history of Islamic thought. It was to reconcile reason, represented in logic, with Revelation, represented in the science of *uṣūl al-fiqh*. This was not mere words written in some isolated ivory tower far from the world of reality and without interaction with it, like those of the Islamic philosophers - beginning with al-Kindī, passing to al-Fārābī and Ibn Sīnā and ending with Ibn Rushd. Their efforts were only the presentation of arguments together with verses from the Qur'ān, which they attempted to interpret philosophically. In their work there is little effort to apply their ideas to reality or to

(1) See above, pp. 58–59.
(2) This is clear in the works of Al-Āmidī and Al-Shāṭbih.
take practical steps to give them effect in this world. On the other hand, al-Ghazālī's attempt started from reality and reacted with it and so, was not only verbal but mainly practical. The result was that al-Ghazālī's attempt was much more successful than those of the philosophers.

Al-Ghazālī's background as a scholar-jurist and his widespread fame in this field were among the reasons for his success. From this, it can be said that in attempts of reformation and restoration of a certain system - as far as Muslim societies are concerned - the probabilities of success, when the people who perform them belong to the system, are higher than those when the people are outsiders of this system.
The present study has demonstrated the following ideas:

Al-Ghazālī had an invariable attitude to logic during the course of his life. He regarded logic as a neutral discipline, not committed to any philosophical view or doctrine. To him, logic was a criterion by which we can distinguish between true and false knowledge. Furthermore, al-Chazālī regarded logic as the only method to achieve knowledge, certain and probable, in all sciences (including kalām and fiqh), and so it was an instrument to all sciences.

Al-Ghazālī developed a theory of knowledge to justify his theory of certainty. In this theory, he adopted Aristotle's theory of demonstration which he regarded as the only objective method of achieving certainty in all sciences.

Al-Ghazālī was the first to introduce logic into, and to mix it with, religious sciences in a practical way (through his works on usūl al-fiqh and kalām). He also was the first to apply the way of definition and the method of inference in logic to usūl al-fiqh and kalām and replace their methods with those of logic.

In fact, al-Ghazālī was aiming to introduce logic into the Islamic science to revitalise the system of religious education. One of the means he used to make this revitalisation successful was his claiming that logic was found in the Qur'ān, while the fact was that he used his knowledge of logic to interpret some verses of the Qur'ān, in a manner which served his claim.

In all, what he had done with regard to the introduction of logic into the Islamic sciences, al-Ghazālī's main
concern was the formal parts of logic. This attitude to logic influenced the course of logic in the Islamic world, in so far as logic became mainly formal, and the text books on logic no longer followed the order of Aristotle's Organon (i.e. discussed the eight subject matters of it).

Al-Ghazālī did not make important contributions to logic as a discipline, unless one wants to consider his concentration on the formal side of logic as a kind of contribution.

Indeed, al-Ghazālī's attitude to logic and his great effort to introduce it into the Islamic sciences was the first successful attempt, in the Islamic world to Islamicise Greek logic.
BIBLIOGRAPHY.

This Bibliography is arranged alphabetically, according to the surnames of the authors. The words Abū, Ibn, Ibn Abī and al- (in names like al-Ghazālī) were discounted.

The Holy Qur’ān.
Encyclopaedia of Islam (first and second editions).

Al-Abharī, Athīr al-Dīn
Isaghūjī fī al-Manṭiq, Cairo, 1916.

Ibn 'Adī, Yaḥyā
"Maqālat Yaḥyā ibn 'Adī fī al-Buḥūth al-Arba'ah al-Ilmiyyah 'an Șina'at al-Manṭiq".

Al-Alūsī, Ḥusam

Al-Āmidī, 'Alī ibn abī 'Alī
Al-Ihkām fī Usūl al-Aḥkām, (3 vols), Cairo, 1913.

Amin, Ahmad

Aristotle,
Categoria and De Interpretatione, translated into English by: E.M. Edgehill.


Topica and De Sophistica Elenchis: translated by:
W. A. Pickard - Cambridge.

All in 1 vol. (in 2), Oxford, 1928.


Badawī, 'Abd al-Rahmān

Al-Aflāṭūniyyah al-Muḥdathah 'ind al-'Aṣr, Cairo, 1955.
Mu'allafāt al-Ghazālī, Cairo, 1961.
Aflūṭīn 'ind al-'Arb, Cairo, 1955.

Brehier, E.


ibn Bihrīz, Ḥabīb


Brockelmann, Carl


De Boer, T.J.


Dimitriu, Anton


Brunschvig, Robert


Dunlop, D. M.


Eaton, R. M.

*General Logic*, New York, 1931.

van Ess, Josef

Fakhry, Mājid


Fākhūri, 'Adil


Al-Fārābī, Abū Naṣr Muhammad

Rasā'il al-Fārābī, Hayder Abad, 1926. (There are 11 treatises collected in this volume).


Faruki, Kemal A.

Islamic Jurisprudence, Pakistan, 1962.

Gairdner, W.H.T.


Galloway, George


Al-Ghazālī, Abū Ḥāmid Muhammad


Fayṣal al-Tafriqah bayn al-Islam wa al-Zandaqah, Cairo, 1353/1934.

Iḥyāʾ 'Ulūm al-Ḥ Din, Cairo, 1340 A.H.
Iljām al-'Awāmm 'ac 'Ilm al-Kalām, Cairo, 1932.

Al-Iqtiṣād fī al-Iʿtiqād, Cairo, 1320 A.H.

Jawāhir al-Qurʾān, Cairo, 1352/1936.


Mihakk al-Nāẓar fī al-Mantiq, edited by: M. Naʿānī and M. Qabbānī, Cairo (no date).


Al-Mustaṣfā min Uṣūl al-Fiqh, (2 vols), Cairo, 1904.


Tahāfut al-Falāṣifah (The Inconsistency of the Philosopshers), translated into English by: Sabih Ahmad Kamali, Lahore, 1958.
Grunbaum, I.G.E. von


Al-Ḥakīm, M.T.


Harre, R.


Ḥazm, Ibn


Iqbal, Muhammad


al-Jabbār, Al-Qādī ‘Abd


Jabre, Farīd

La Notion de la Ma’rīfa Chez Ghazālī, Beyrouth, 1958.

Al-Juwayni, ‘Abd al-Malik

Al-İrşhad ila Qawāṭi’ al-Adillah ff Uṣūl al-I’tiqād, edited by: M.Y. Mūsā and S.A. Abd al-Ḥamīd, Cairo, 1950

Kant, Immanuel

Ibn Khaldūn,

The Muqaddimah, translated into English by:

Khallāf, 'Abd al-Wahhāb


Al-Khwārizmī, Abu 'Abd Allāh

Mafātīh al-‘Ulūm, Cairo, 1342 A.H.

Al-Kindī, Ya'qūb ibn Ishaq

Rasā'il al-Kindī al-Falsafiyyah, (2 vols), edited by
M.A. Abū Rida, Cairo, 1950 -1952.

Kleinknecht, Angelika

Al-Qisṭās al-Mustaqīm: eine Ableitung der Logik aus
dem Koran", Islamic philosophy and the Classical
Tradition, edited by: S.M. Stern and others, Colombia,
1972.

Kneale, W. and M.


Kraus, Paul

"Zu ibn al-Muqaffa’", Rivista degli Studi Orientali,
vol. 14, (1933) pp. 1-20. (There is an Arabic transla-
tion of it in A. Badawi, Al-Turāth al-Ŷūnānī fī
al-Ḥadārah al-İslāmiyyah, Cairo, 1946).

Lukasiewcz, Jan

Aristotle's Syllogism from the Standpoint of Formal

Macdonald, D.B.

"The Life of Gazālī with Special Reference to his
Religious Experience". Journal of the American Oriental
Madkour, Ibrahīm


Mahdī, Muḥsin


Maḥmūd, Fawqiyah

Al-Juwaynī, Cairo, 1964.

Maḥmūd, Zaki


Makdisi, George


Ibn Malkā, Abu al-Barakāt


Marmura, M.E.


Mater, Benson

Stoic Logic, California, 1953.

Meyerhof, Max


Al-Miṣrī, Ibn Nubātah


Ibn Al-Muqaffa', 'Abd al-Nadīm


Ibn al-Nadīm, Ishāq


al-Nashshār, 'Alī S.


O'Leary, DeLacy


al-Qīṭṭi, Jamāl ad-Dīn

Tarīkh al-Hukamā, edited by: Lippert, 1320 A.H.

al-Rāhmān, Fadl


Rescher, Nicholas

Al-Fārābī's, Short Commentary on Aristotle's Prior Analytics, Pittsburgh, 1963.

Al-Fārābī, an Annotated Bibliography, Pittsburgh, 1962.


Al-Kindī, an Annotated Bibliography, Pittsburgh, 1962.

Rosenthal, Franz

Knowledge Triumphant, Leiden, 1970.

Ross, W.D.


Ibn Rushd


Russell, Bertrand


Al-Sakkākī, Abū Ya'qūb Yūsuf

Miftāḥ al-'Ulūm, Cairo, 1348 A.H.

Al-Ṣalāḥ, Ibn

Fatāwā ibn al-Salāḥ fī al-Tafsīr wa al-Hadīth wa al-'Aqidah, Cairo, 1348 A.H.

Al-Sayyed Aḥmad, 'Azmī T.

Al-Kindī wa Ra'yuhu fī al-'Ālam bi al-Muqārūnah ma' Aflātūn wa Arīṣū (M.A. Thesis), Kuwait University, 1976.

Schacht, Josef


Shaddād, Kamāl

Al-Shafi'ī, Muhammad ibn Idrīs


Al-Um, in the narration of: Al-Rabi' Ibn Sulaymān, Cairo, 1321 A.H.

Ibn Sīnā, Abū 'Alī al-Ḥasan


Mantiq al-Mashriqiyīn, Cairo, 1910


Al-Siyūṭī, Jalāl al-Dīn

Smith, M.

Al-Ghazālī, the Mystic, London, 1944.

Stebbing, Susan


al-Subkī, Taḥānawī, Muhammad A.

Tabaqāt al-Shafi‘iyyah al-Kibrā, (6 vols), Cairo 1324 A.H.


Al-Tawhīdī, Abu Ḥayyān


Ibn Taymiyyah, Taqī al-Din


Tritton, A. S.


Ibn Ṭumlūs, Abū al-Hajjāj

Al-Urmawi, Strāj al-Dīn

Maṭāli' al-Anwar, Cairo, 1303 A.H.

Abī Uṣaybi'ah, Ibn

'Uyūn al-Anbā' fī Ṭabaqāt al-ʿAṭbbā', (2 vols) edited
Imri'u al-Qays ibn al-Ṭahān, Cairo, 1882.

al-ʿUthmān, A. al-Karīm

Sirat al-Ghazālī, Damascus (no date).

Vuillemin, J.


Walzer, Richard


Watt, W. Montomery

"The Authenticity of the Works attributed to
Al-Ghazālī.". Journal of the Royal Asiatic Society,
1952, pp. 24-25.

Islamic Philosophy and Theology, Edinburgh, 1962.
The Faith and Practice of Al-Ghazālī, 4th impression,
"Ghazālī, al-", Encyclopaedia Britannica, 15th edition,
1974.
"The Logical Basis of Early Kalam, The Islamic Quarterly,
Muslim Intellectual: A Study of al-Ghazālī, Edinburgh,

Welton, J.


Wensinck, A. J.

La Pensee de Ghazālī, Paris, 1940.
Wolfson, H. A.


Zadah, Ṭash Kubra

Miftah al-Sa‘ādah wa Miṣbah al-Siyādah, Hayder Abād, 1318 A.H.

Abū Zahrah, Muhammad


Zimmermann, F.W.