ISLAMIC SCIENCE
CROSSROAD OF CULTURES

AN EXHIBITION
at the
Wellcome Institute for the History of Medicine
The motion of the planet Mercury from the horoscope of the Timurid prince Iskandar, copied in 1410 A.D. is featured on the cover against a background of various scripts found in the Islamic world.

Persian MS. 474 f.5v.
ISLAMIC SCIENCE

Crossroad of Cultures

An exhibition at the
Wellcome Institute for the History of Medicine
183 Euston Road, London NW1 2BP

19 June to 12 November 1985
Monday to Friday 9.45am to 5.15pm
INTRODUCTION

A crossroad has been defined as a point of intersection between two or more roads. It is therefore appropriate that "crossroad of cultures" should be the subtitle to an exhibition devoted to Islamic science for Islam stands at a point of contact between Judaism, Christianity and Islam, between the ancient cultures of the east and west which in turn produced Islam's own distinctive science and culture. A crossroad however, is not a convergence of roads from different places to a termination at one point, but rather continues across the point of convergence to many different destinations. By the same token the synthesis that took place at Islam's crossroad of cultures diverged again to many destinations in South East Asia, India, the Near East, North Africa and Southern Spain. By this convergence of ideas Islam both preserved and developed the sciences of the ancient world until such time as the western world had emerged from semi-barbarism and was fit to receive and further develop them into the scientific knowledge of the twentieth century. This is the debt the western world of our own day owes to the Islamic world of medieval times.

This synthesis of ideas was a process which began before the rise of Islam as the inevitable result of contact between different peoples through commerce and trade. With the decline of the Roman Empire and the rise of Christianity the burden of Greek learning passed from the former to the latter. The intermediaries between ancient Greece and the Arabs were Christians whose language was Syriac, a Semitic language in many respects similar to Arabic but containing much Greek vocabulary, hence a suitable vehicle of transmission from the Hellenistic to the Islamic world. Under the Abbāsid Caliphs Baghdaḍ became the centre of Islamic science largely due to Christians acting as translators from Greek into Syriac and Arabic at the famous Bayt al-ḥikma "House of Wisdom" established by the Caliph al- Ma'mūn (d.218/833) and directed by Ḥan̄eyn ibn Ishāq (d.268/882), a Nestorian Christian and physician who had studied at the famous Christian university in Gondishapur in South West Iran. Rhazes (d. c. 313/925), a Moslem from the Iranian city of Rayy, in his great medical compendium quotes the writings of Perzoes the monk sent by Anūshirvān (d.379 A.D.) to India to collect drugs. Avicenna (d.428/1037), born near Bokhārā in Turkestan, philosopher, statesman and physician brought together all medical knowledge of his time in his K al-Qānīn. This work was studied by students of medicine both east and west until late in the medieval period.

Science in the Islamic world transcended cultural and religious differences. Maimonides (d.601/1204), the 850th anniversary of whose birth in Moorish Córdova is celebrated this year, although the greatest Jewish philosopher and also a physician of distinction, was a pupil of distinguished Islamic philosophers. Later in Egypt he was appointed physician to the Caliph. Ibn Butlān (d.458/1066), a Nestorian priest and physician wrote medical and theological works and organised hospitals in Aleppo and Baghdad; 'All b. ʿIssa (d.c. 400/1010), a physician and secretary to the Catholicos Johannes, changed his allegiance from the Nestorian to the Greek church while Ibn Juzla (d.493/1100) also a physician converted from Christianity to Islam.
The great Timurid family of Mongol rulers contributed much to the arts and sciences in the Islamic world as witnessed by the exquisite artistry of the horoscope of Iskandar Sultan (d. 817/1414). His cousin, Ulugh Beg, (d. 853/1449) established his celebrated observatory at Samarkand and composed the astronomical tables that bear his name while Mansur, (d. after 826/1422) the Iranian anatomist, dedicated his anatomical work Tahreh-i Mansuri to another Timurid prince, Sultan Dyu′r al-Din Amir-zada Fir Muhammad Bahadur Khan (d. after 812/1409). These drawings attributed to ancient Alexandria reflect the convergence of Hellenistic medicine with Islamic and its divergence again to east and west. Many of the topics chosen to illustrate Islamic science are connected with the healing art which is the most strongly represented of all the sciences in the Wellcome collections. The variety of languages contained in the manuscripts displayed represent the many different cultures of Islam.

During the 12th and 13th centuries Europe’s contact with the Islamic world increased, especially following the Crusades, and interest was aroused in Islamic science and the Hellenistic learning it preserved. Many works were translated from Arabic and introduced to the west resulting in an intellectual summer of Islamic influence in medieval Europe. In this work of translating from Arabic into Latin, Spanish Jews who were fluent in Arabic were the natural intermediaries. The adven of printing and the invention of movable type in the 15th century gave added impetus to the study of the writings of Islamic scientists both in translation and in their original languages. During the following century the new learning of the Renaissance together with the Reformation stimulated a fresh interest in the original languages of the Bible. Hebrew was studied and some attention paid to the other Semitic languages especially Arabic. Chairs of Arabic were established in the universities of Oxford and Cambridge in the 17th century, and an increasing interest in Islam was further aroused by expanding trade with the Near East and travel in the lands of Islam, the collecting of manuscripts, and the teaching of grammar and history.

This exhibition has been organised to support the series of research seminars currently being held during the academic term at the Wellcome Institute in conjunction with the Department of the History and Philosophy of Science at University College London which are devoted to “Sources of Medicine, Science and Technology in Islamic Civilization.” The exhibition has been the idea of Dr. Gill Russell the organiser of this successful series of research seminars. I am much indebted to Dr. Russell for her unfailing support in every stage of the exhibition’s planning and for her assistance in areas of her particular expertise especially Turkish. I should also like to record my debt to Dr. Fateme KeshaVars for her generous help in so many ways especially with the Persian exhibits and to draw attention to the forthcoming publication of her magisterial work, A descriptive and analytical catalogue of Persian Manuscripts in the library of the Wellcome Institute for the History of Medicine, an event eagerly awaited by scholars in Iranian studies both here and abroad.

We have been fortunate in procuring a loan of four manuscripts from the British Library and one from the Institute of Ismaili Studies along with a number of items from the Science Museum and the Wellcome Museum of
Known in Arabic as Jāḥīṣī, Galen was born in Pergamon in 129 A.D. and died in Rome aged 70. In the annals of medicine in antiquity he occupies a place second only to Hippocrates and from his numerous dissections and observations advanced the knowledge of his time in anatomy, physiology, embryology, pathology, therapeutics and pharmacology. He was also a distinguished philosopher relating medical practice to philosophical concepts by means of the logic of Aristotle (384–322 B.C.). Galen's medical works were particularly admired by all later Islamic physicians who translated them in their original form as well as in summary commented on them and wrote works based on them so ensuring that the authority of Galenic medicine should remain unimpaired until the 16th century.

As in the case of philosophy and other sciences, Islamic medicine follows the late Greek syllabus almost without a gap. This is largely due to the translations made in the Christian Orient of Greek works into Syriac and Armenian which ultimately passed into Arabic translation. Sergius of Rashānā (d. 536 A.D.), a Christian priest and physician in Mesopotamia was one of the earliest translators of Galenic works whose translations can still be identified. Job of Edessa (early 3rd/4th century), also originating in Christian Mesopotamia, is credited with the translation from Greek into Syriac and Arabic of thirty different scientific works. Ḫūnayn ibn Iṣḥāq (192/808 – 260/873), a Nestorian priest, was the most distinguished translator of all; through his translations Islamic physicians became the worthy successors of their Greek antecedents. Proficient in Greek, Syriac and Arabic he was set in charge of the Bayt al-jīḥam, an academy established in Baghdad by the Caliph al-Ma'mūn for the translation of Greek scientific works into Arabic. In this way the complete curriculum of the medical school of Alexandria was made available to Arab students in their own language. These translations were of a high standard carried out in a methodical and scientific way with recourse to the best manuscripts available.

Many philosophical and medical texts were translated from Greek into Armenian at an early date so preserving in Armenian translation many Greek scientific texts long since lost in their original language or in the translation of other languages.

A selection of medical texts from Galen's works are displayed in Armenian, Syriac translation and in Greek.

Definitiones medicæ, "Medical definitions", Undated (late 16th century) Greek manuscript transcribed in a semi-current hand and containing 479 medical terms for students, a selection of which are shown WMS 289 ff. 5", 6".

al-ʿAḏīr al-ʿālīma, "The diagnosis of diseases of the internal organs", Undated (7th/13th century) Arabic manuscript copied in fine Naskh by a physician Abū Naṣr b. ʿAbd al-Salām b. Abī Mansūr al-Tārīkhī and previously owned by Shāmūn b. Yahyā Iṣḥāq b. ʿAbd al-Kāthī b. Abī al-ʿIzz al-ʿIsrāʾīlī, ʿAll b. Ḥāmza al-Muṭṭāṭabbīb, ʿAlī al-Dīn b. Wālī al-Dīn al-Muṭṭāṭabbīb and Muḥammad Karīm (1269/1852). This work was translated from Greek by Ḫūnayn ibn Ṣaḥāq (192/808 – 260/873) and comprises six treatises. The beginning of the first treatise is shown. Arabic Ms. WMS. OR 144 ff. 1", 2".

Ibr ʿIghīqūn, "To Gałęon", Undated (10/16th century) Arabic manuscript copied in the Nashī style. This work comprises two treatises relating to therapy (Summāriā Alexanderinorum) which were translated by Ḫūnayn ibn Iṣḥāq (192/808 – 260/873). Ḫūnayn states that the Greek physicians of the school of Alexandria classified Galen's sixteen books into seven categories for study by medical students. The first category was regarded as an introduction to medicine the fourth part of which was Ibr ʿIghīqūn, a general treatise on medicine, which Galen wrote for his friend Gałęon who was about to travel abroad, c. 175 A.D. Arabic MS. WMS OR 62 ff. 1", 2".

Ṭeṣafir Jāḥīṣī li-ʾfuṣūl Buqra, "Galen's treatise on the aphorisms of Hippocrates". This work containing seven treatises was translated by Ḫūnayn b. Iṣḥāq (192/808 – 260/873). The manuscript is undated (11/17th centuries) and copied in clear Taʾlīsq. The opening displayed is concerned with gynaecology and obstetrics including observations relating to the miscarriage of children. Arabic MS WMS OR. 64 ff. 59", 69".

Fragment of chapter 24 from Ars medica in Syriac translation (f. 14") dealing with respiration followed by a fragment from de Alimentorum facultatibus, Book 2, chapters LVIII – LXI in Syriac translation (f. 15") which deals with various plants including asparagus. Copied c. 8th century A.D. in a fine regular Estrangela script on vellum, these fragments may possibly have been translated from Greek by Sergius of Rashānā (d. 538) British Library Ms. Add. 17156. ff 14", 15".

Lent by the British Library, Department of Oriental Manuscripts & Printed Books.

De simplicium Medicamentorum Temperamentis ac Facultatibus in the Syriac translation of Sergius of Rashānā (d. 538) and addressed to his pupil, Theodore, Bishop of Merw. The manuscript, copied in the Estrangela script on vellum during the 6th or 7th centuries A.D., contains Books 6, 7 and 8 of the work. The opening taken from Book 7 describes the medical properties of various herbs. British library Ms. Add. 14661 ff. 34", 35".

Lent by the British Library, Department of Oriental Manuscripts & Printed Books.

Armenian manuscript containing ʿHeqʿmaran, "Medical Encyclopaedia", composed by the Armenian physician ʿAmlīrdovlat Amasacʿī (d. 1496 A.D.). The manuscript was copied in 1461 on vellum in a small fine Bougar hand in vulgar dialect instead of the customary classical Armenian. On f. 3" displayed, beneath the head-piece is written and given here in English "If you are scientific, then make use of this work. The name of the book is ʿAngētī Anīpēt [Useless for the ignorant]." Then follows in gold, blue and red capitals "by the grace of the Lord and the mercy of the Creator and immortal God who is Bestower of all blessings..."
This work, which is an encyclopaedia of medieval Armenian pharmacology (with the names of drugs given in five languages: Armenian, Greek, Latin, Arabic and Persian) containing the names and synonyms of more than 3500 medicinal plants, animals and minerals, represents Armenia's medieval medical tradition at its best. Much of the content is drawn from the medicine of ancient Greece including Dioscorides and Galen.

Amir dovlat Amasian'i was the last great Armenian physician in the classical tradition of ancient Greece. Born in Asia Minor early in the 15th century A.D., he eventually settled in Constantinople and was appointed personal physician to Sultan Muhammad II. He wrote a number of important medical works and in all displays a wide knowledge of Greek and Islamic medicine. In his work on the usefulness of medicine completed in 1469 he wrote "Remember brothers that this book is not my work, it is the work of ancient sages ... that of Hippocrates and Galen, Ḥunayn ibn Ishāq and Ibn Sīna ... it is from their books I have gathered data and written it ... in my own hand".

British library Ms. OR. 3712 ff. 2v, 3r

Lent by the British Library, Department of Oriental Manuscripts & Printed books.

Composite Armenian manuscript containing treatises on the formation and structure of the human body. The manuscript is copied in four different Notengir, or notaries' hands of the 17th or early 18th century. One of the copyists gives his name, place and date i.e. Paul the monk, Isfahān, 1625 A.D. The opening displayed on f. 22v in English translation begins: "Towards an understanding of the veins Galen says ...".

British Library Ms. OR. 6796 ff. 21v, 22r

Lent by the British Library, Department of Oriental Manuscripts & Printed books.

Greek ointment pot, possibly Cretan, dating from c. 300 B.C.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 60634

Glass stirring rod, possibly Roman, with a hook at one end and flattened at the other; a spiral pattern is picked out in green and white paint down the rod.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 96793

Glass flask possibly used as an infant feeder, dating from c. 200 A.D.; probably of Roman origin.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 85614

CASE 2. AN EARLY IRANIAN PHYSICIAN: RHazes (c.251/865-313/925).

Abū Bakr Muhammad b. Zakariyya al-Rāzī, commonly known in the west as Rhazes, was born in the city of Rayy near Tehran in the middle of the ninth century. Initially he worked as a physician in his native city but later moved to Baghdād where he became chief physician. He was both a physician and physicist, as well as an alchemist of distinction. Of his many writings, the most important is the K. al-Ḥawī, "Continens", an enormous encyclopaedia of medicine containing many extracts from Greek and Hindu authors and also observations of his own. Many contributions to gynaecology, obstetrics and ophthalmic surgery can be traced back to him. Towards the end of his life his work was much impeded by increasing blindness. He died c.313/925.

K. al-Ḥawī, "Continens". This important Arabic manuscript transcribed in minūṭ Ta'lliq was copied in 669/1170 in Tabriz. The work, comprising four books, is incomplete possibly due to the premature death of Rhazes: parts of it appear to be the author's private notes and experiences jotted down, doubtless drawn from case histories of patients under his care. These were recorded posthumously by his disciples. The subject matter and presentation of the four books in K. al-Ḥawī bear a strong resemblance to that found in K. al-Ṭārīqī, Ibn Šinā (370/980-428/1037) and suggest a relationship between the two. Shown here is the beginning of the third book al-adwiya al-murakkabā "Pharmacopoeia" (f.f.86v li.188v.) preceded by the end of book II al-adwiya al-mufrada "Materia Medica".

Arabic Ms. WMS. OR. 123. ff.86v, 87r.

K. al-Ḥawī, "Continens". Undated (8/14th century) Arabic manuscript written in Naskh with diacritical vowels and transcribed by the famous biographer Khāmil b. Aybak al-Ṣafadī who died in Damascus in 764/1363 while occupying the position of chancellor. He wrote an entry on f. 1". the English translation of the Arabic being" ...this volume together with those preceding it, sixteen in all belong to Khāmil b. Aybak al-Ṣafadī...". The opening shown displays the section on urine from book I. Fī al-ʿusūl al-ṭibbiyya "Principles of medicine".

Arabic Ms. WMS. OR. 160. ff.41, 42r.

An undated (7/13th century) Arabic manuscript copied in clear Naskh containing selections from K. al-Ḥawī "Continens". The opening displayed contains a treatise on simples from Book II al-adwiya al-mufrada "Materia Medica".

Arabic Ms. WMS. OR. 159. ff.113v, 114v.

Bur'a al-sā'ā. "Healing within an hour". Composite Arabic manuscript copied by Ghulām Muhammad Fīr Ṣurūfī in 1174/1760 with rubrications. The beginning of the work is exhibited.

Arabic Ms. WMS. OR. 31. ff. 7v, 8r.

Bur'a al-sā'ā. "Healing within an hour". Undated (13/19th century) composite Arabic manuscript written in excellent Naskh style with rubrications opened at the beginning of the treatise.

Arabic Ms. WMS. OR. 87. ff.329v, 330v.

Man lā yakūdhuruhu al-ṭabīb. "Who has no physician to attend him". Composite and undated (12/18th century) Arabic manuscript copied in clear Ta'lliq and containing medical prescriptions for the poor. The opening displays the beginning of the work.

Arabic Ms. WMS. OR. 28. ff.136v, 137v.
6/12th century Iranian pharmacy jar. 
Lent by the Wellcome Museum of the History of Medicine at the Science 

9/15th century Iranian pharmacy jar. 
Lent by the Wellcome Museum of the History of Medicine at the Science 

6/12th century Iranian pharmacy jar. 
Lent by the Wellcome Museum of the History of Medicine at the Science 

9/15th century Iranian pharmacy jar. 
Lent by the Wellcome Museum of the History of Medicine at the Science 

CASE 3. "THE PRINCE OF PHYSICIANS", AVICENNA 
(370/890-428/1037).

Abū 'Ali al-Ḥusayn b. 'Abd-Allāh Ibn Sinā, known in the west as Avicenna, was born in 370/890 near Bukhāra. From an early age he displayed an extraordinary intelligence and by the age of twenty-one had written his first philosophical work. To earn a living he entered the administration where his judgement was soon appreciated and his counsel sought both on medical and political matters. Following a court intrigue he was forced into hiding and earned his livelihood by medical consultations, but he spent his final years in relative peace at the court of Isfahān where he became court physician and lecturer on medicine and philosophy. He died at Hamadan in 428/1037, allegedly from overwork and riotous living.

The corpus of Avicenna's works that have survived is considerable although incomplete. Primarily a philosopher and physician, Avicenna also contributed to the advancement of all science known in his time. The most famous of his medical writings is K. al-Qanûn which is the clear and ordered summation of all medical knowledge of the time augmented with some of Avicenna's own observations. Until comparatively recent times this work formed the basis of medical teaching in both Europe and the east and appears in the oldest known syllabus of instruction given to the school of medicine at Montpellier. Chaucer reminds us in the prologue to the Canterbury Tales that no doctor should be ignorant of it. A selection of manuscripts containing this work along with commentaries on it are displayed.

al-Qanûn fi al-tibb, "Canon of Medicine". This fine Arabic manuscript in excellent Ta'lim was transcribed by N'mat-Allāh in Isfahān in 1042/1632. Shown here is the beginning of Book III, al-Amārāt al-Juz'iyya, "Head to Toe Diseases". It begins with diseases of the brain, and ends with pains of the joints, sciatica, and finally diseases of the nails. The manuscript is bound between two finely lacquered papier-mâché boards each exquisite examples of Safavid lacquer work. A print of one of them is displayed to Case 6.

Arabic Ms. WMS. OR. 155. ff. 219v, 219v.
CASE 4. PHYSICIANS AND SCIENTISTS FROM THE 10TH TO 12TH CENTURIES A.D.

A selection of manuscripts drawn from the Wellcome Collection, composed by Moslem Jews and Christians are shown to illustrate the multi-religious background of Islamic scientists. The 10th century writer Haly Abbas is represented by his work al-Malākī in Arabic and Judeo-Arabic translation forming a nucleus between the two giants of Islamic medicine and science, Rhazes (d. 925 A.D.) and Avicenna (d. 1037 A.D.), featured in the preceding two cabinets.

Haly Abbas, a Christian physician of the 10th/early 11th century along with the Ibn Hazl and Ibn Buțlun, the former a convert from Islam to Christianity the latter a Christian cleric, represent the Christian contribution to Islamic science in their time and a continuation of Christian physicians as exemplified by Sunnay Ibn Ishaq (d. 668/873) and the distinguished Bukhshsī family, court physicians at Baghdad for three centuries. Ibn al-Tilmīd and Maimonides, neither of whom were Moslems represent different parts of the Islamic world of the 12th century. Ibn al-Tilmīd, a Christian physician in Baghdad and Maimonides, the greatest medieval Jewish philosopher, theologian and physician was born in Cordova but lived most of his life in Egypt.

Kāmil al-ṣīna’a al-tibbiyyah, "Complete art of medicine" also known as al-Malākī "the royal book" by ʿAlī b. al-ʿAbbas al-Maʃūṣī (fl. 4/10th century). Undated (8/14th century) Arabic manuscript copied by Ḥānna a physician in Naḵkh and containing Book 1 (treatises one to five inclusive). The last three owners named in the manuscript, i.e. Ḥānna, a physician of Aleppo (1115/1709), Yūsuf a physician son of Ḥānna a physician (1157/1744), and Asʿir son of Yūsuf (1193/1779) appear to be three generations of one family.

1ʿAlī b. al-ʿAbbas al-Maʃūṣī, commonly known in the west as Haly Abbas, came from Iran and studied medicine in Shiraz dedicating his opus magnum Kāmil al-ṣīna’a to its ruler ʿAṣūd al-Dawla (reigned 338/949-372/982), the greatest ruler of the Iranian Buwayhid dynasty. From its dedication he earned for himself the nickname "the royal book" and medieval Latin translators called it the Liber Regius. It was immediately recognized as a masterpiece although a century later it was overshadowed by the al-qaṣīnī at-tibb of Ibn Sīna. However it remained sufficiently popular to be translated into Latin by Stephen of Antioch in 1127 whose translation was subsequently printed in Venice in 1492 and in Lyons in 1523. The surgical section of the work had already been translated by Constantine the African in the 11th century and was used by the school of Salerno. Shown here is the table of contents from the fifth book which is concerned with the effect of environment on health.

Arabic Ms. OR 55A ff. 132V, 133r.

Fragment of Ḥānna al-ṣīna’a al-tibbiyyah, "Complete art of medicine" also known as al-Malākī "the royal book" by ʿAlī b. al-ʿAbbas al-Maʃūṣī (fl. 4/10th century). Undated (11/17th century) Judeo-Arabic manuscript in cursive script. A section dealing with the throat is shown.

Hebrew Ms. A16 ff. 32v, 33r.

al-Aqrābādīn, "Pharmacoepoeia" by Saʿīd b. Ḥibat-Allāh b. ʿAbīnāb ʿAbū ʿAbd-Allāh Amīn al-Dawla, ibn al-Tilmīd. Undated (12/18th century) composite Arabic manuscript copied in clear Naḵkh with rubrications. Ibn al-Tilmīd was a Christian and held the position of court physician to the caliph al-Muqtādī. He died in Baghdad in 560/1165 having almost attained the age of a hundred years. Shown here is the beginning of his pharmacoepoeia (f. 79r) and the conclusion of his work Maṣqa al-tibb "A treatise on bleeding" (f. 78r).

Arabic Ms. OR 9 ff. 78v, 79r.

Ṭaʿwīm al-abdān fī tadbīr al-insān, "Treatment by regimens" by ʿAbū ʿAlī ʿAbd-Allāh ibn al-ṣīna’ al-Maʃūṣī (d. 493/1100). Undated (8/15th century) Arabic manuscript, copied in Naḵkh with rubrications and tables and containing previous owners' entries: Saʿīd b. ʿAbī (935/1518) and Yūsuf b. Ḥanana, a physician (1157/1744).

Of Christian parentage, ibn Jazla embraced Islam under the influence of his teacher the Muṭṭāzīl Abū ʿAbī al-Walîd in 466/1074. He was secretary to the Ṣanṣar Qaḍī of Baghdad and studied medicine with Saʿīd b. Ḥiβat Allāh, court physician to al-Muqtādī. He died in Shābān in 493/1100. The work shown here was translated into Latin by the Sicilian Jewish physician Faraj b. Sālim (Magister Faraci) in 1280 under the title of Teculini aegritudinum (printed in Strasbourg in 1532); this work comprises 44 tables describing 352 maladies and indicates the appropriate diets for them. It is possible that the author was inspired by the Ṭaʿwīm al-ṣība of Ibn Buṭlun.

The opening shows tables relating to diseases of the cornea, their symptoms and treatments.

Arabic Ms. WMS. OR 54 ff. 28v, 29r.

Tadbīr al-amrāq al-ʿarḍa qal al-ṣīna’ al-ṣīna’ al-maʃūṣī, "Treatment of current diseases by the administration of common foods" or Kunnah al-adīrī, "compendium for use in monasteries" by al-Muḥtaṯ b. al-Ḥasan b. ʿAbd-Allāh b. ʿAbīnāb ʿAbī Buṭlun (d. 458/1066).
Undated (15/18th century) composite Arabic manuscript. The author was most certainly a Nestorian cleric, probably a priest, and taught medicine and philosophy in Baghdad. Ibn Butlan travelled extensively and while in Aleppo advised the governor on the location of hospitals to be built there and was appointed to regulate the working of the Christian community. In Cairo he became the target of the hostility of his Egyptian colleague Ibn Riqwan and there ensued a remarkable medico-philosophical controversy in which the two adversaries tried to exhibit their entire erudition particularly in Greek medicine and philosophy. After three or four years in Cairo, Ibn Butlan went to Constantinople, his arrival in 446/1054 coinciding with the crisis which led to the schism between the Greek and Latin churches. There he was asked to write a treatise on the doctrine of the Eucharist. Later in 455/1063 he supervised the building of a hospital in Antioch finally retiring to a monastery there where he died in 458/1066.

The literary production of Ibn Butlan is distinguished by its originality. The example shown is one of the author’s lesser known works—a treatise on homely remedies particularly for the use of monks. The opening exhibited shows the end of chapter seventeen dealing with the respiratory organs and the beginning of chapter eighteen which describes disorders of the stomach.

Arabic Ms. WMS OR. 118 ff.12v, 13v.


Ibn Maymūn known in Hebrew literature as Moses ben Maimon and in the west as Maimonides, the celebrated Talmudist philosopher and physician, was born in Cordova in 529/1135 and received his medical education from his father himself a scholar of high merit. At an early age, he was placed under the most distinguished Islamic scholars who initiated him in all branches of learning at the time. When Cordova fell to the fanatical Almohades, Maimonides and his fellow co-religionists chose exile in preference to embracing Islam and settled in Fostat (Cairo) where he established a school for the study of the Talmud. Compelled by family and financial misfortune Maimonides had to work for a living and considering it a sin to earn a living from religion he adopted the medical profession. After several years of practising, Maimonides’ authority in medical matters was finally established and he was appointed private physician to Saladin’s vizier, al-Qāḍī al-Baysami, who recommended him to the royal family and bestowed upon him many distinctions. According to al-Qāḍī, Maimonides declined a similar position offered to him by the King of the Franks in Acre (Richard I of England). The work exhibited is dedicated to the Sultan al-Malik al-Afqi al-Damascus and is opened at the beginning.

Arabic MS. WMS OR. 27 ff.55v, 56r.

Islamic cupping glass which was heated internally with rags and applied to the skin so drawing the blood to the surface.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 608650

13/19th century brass divination bowl engraved with Arabic texts from the Qurʾān.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 155162

Islamic glass molar tooth bottle.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 628596

CASE 5. QAZWINI (G.600/1202-682/1283), AN ENCYCLOPAEDIST FROM IRAQ

Zakariyya b. Muḥammad b. Mahmūd Abū Yahyā al-Qazwī, although of Arab extraction, was born in Qazwin in Iran c. 600/1202. He travelled extensively spending some time in Baghda d and Damascus and occupying the office of Qāḍī in Wāṣīṭ and al-Hillah during the reign of the last Ḍawāṣir Caliph al-Musta’sīm (640/1240-656/1258). After Baghda d had been taken by the Mongols in 656/1258 he retired from public life to devote himself entirely to scientific activities and died in 682/1283. Qazwī is distinguished by his two celebrated works, a cosmographical one and a geographical one. The first, commonly named Cosmography which bears the title ʿAjā‘ib al-makhluqat wa-ghara‘ib al-mawjudat "Prodigies of things created and miraculous aspects of things existing" comprises two parts, the first of which treats supernatural things and the second terrestrial. The Cosmography was the first systematic exposition of cosmography in Islamic literature and enjoyed considerable popularity throughout the Islamic world. This is witnessed by a great number of manuscripts representing several Arabic versions, by Persian and Turkish translations and by revisions of the work. Qazwī’s second work commonly called Geography is known from several manuscripts belonging to two different versions. The oldest entitled ʿAjā‘ib al-buldān "Prodigies of the countries" was composed in 661/1262. The second completely revised version dates from 674/1275 and carries
the fourth clime of latitude stretching from China in the east to Andalusia in the west.
Arabic Ms. Ismaili Institute 1 ff. 99v, 100r.

Lent by the Institute of Ismaili Studies, London.

CASE 6. ISLAMIC BOOK BINDING

The earliest bindings were wooden boards tied around stacked pages; alternatively documents were written on strips of parchment or paper, stuck together in lengths of sometimes several metres, and rolled up. In the 7th century sheets were sewn together in codex (bound) form. According to al-Mugaddasi, a book-binder in the 10th century, the sections were sewn, then glued together and the case stuck on with wheat starch. Craftsmen who specialized in decorating book covers worked near the warrāqūn who made and sold paper inks and pens, copied and sewed books.

Pages were squared up with the pagination from right to left. Covers were decorated in many ways. A cover made of wooden boards covered in leather could have a design tooled and stamped directly on to the moistened leather. Covers of open-work cut leather with coloured strips behind were made before the book was assembled. Sometimes a design was made in ink, or the cover was lacquered and then elaborately decorated.

A selection of Islamic book bindings from the Wellcome Collection are displayed in this cabinet.

11/17th century Ottoman leather binding showing the lower cover which comprises a border of gold decorated fillets. The inner panel in gold consists of a central oblong panel stamp with scalloped edge. The stamp's bisymmetrical relief pattern painted in black is composed of cloud ribbons forming a central lozenge and a finer secondary pattern of vines with small leaves and flowers weaving among the cloud ribbons. The outer contours of the panel stamp are outlined in gold with gold lines from which gold sprigs sprout. The points of the panel stamp on the vertical axis extend into gold painted flowers.

A photographic print of an 11/17th century Persian lacquer binding showing the lower cover. This exquisite example of Safavid lacquer work shows a physician taking the pulse of a noble patient. Two servants stand, one by the physician the other behind the patient while in the foreground two herbalists prepare a prescription. The scene is set in a beautiful garden of trees, plants, fruit and birds against a red background and surrounded by a black margin of gold tendrils set between gold rules. The manuscript within the binding is the al-Qānūn fi al-tibb of Ibn Sina copied in 1042/1632 and displayed in Case 3.
Arabic Ms. WMS. OR. 155.

12/18th century Qajar Persian lacquer binding showing the upper cover. A pale bronze lacquer ground has been achieved by the application of lacquer over gold leaf which is clearly visible where the lacquer is damaged. Within a border of yellow and red, flowers and birds are painted in various pigments, red and yellow predominating, among profuse foliage in different shades of green.

Persian Ms. 224.
12th/18th century Kashmiri lacquer binding showing the upper cover. Against a black background a mango shape is painted outlined with a thin green margin within which is a double margin of small dots and between them a wide margin of green with red and yellow petals. Within the mango shape another margin of dots separates an inner margin of green foliage from more green foliage in the interior of the mango shape. The background to the central panel has green leaves and foliage and the whole is contained within an outer margin of orange background and black flowers and an inner yellow margin of black flowers. Persian Ms. 249.

12/18th century Kashmiri lacquer binding of great beauty. The central panel with green background comprises gold and red flowers and vines with a bird at each corner. In the centre is a gold oblong panel with scalloped edge outlined in red, green and gold pigments and within flowers and foliage. The central panel is surrounded by three margins a wide one with green background and gold compartments and two narrow margins all containing flowers and foliage. Persian Ms. 247.

13/19th century red leather binding showing the lower cover. Within the double frame at each corner there are panel stamps of flowers and foliage inscribed with metal. The central medallion with scalloped edge and painted in gold shows a central flower in full bloom with interweaving vine garlands and an outer ring of full blown and smaller flowers and leaves. Triple headed sprigs surround the medallion at intervals outlined in black. The points of the central panel stamp on both horizontal and vertical axis extend to small panel stamps in gold each with an impression of a flower and foliage. Persian Ms. 342.

13/19th century green leather binding showing lower cover with flap. A central lozenge within tooled borders is stamped with symmetrical and flower designs with inset of embossed pink paper. A similar panel stamp appears on the flap. Arabic Ms. WMS. OR. 377.

SCREENS. CALLIGRAPHY

The Arabic script, referred to in Arabic as khaṭṭ which according to tradition was used as early as the lifetime of Mūḥammad for setting down the sacred text of the Qurān, subsequently underwent a diffusion corresponding to the expansion of the Islamic faith and to the development of Islamic civilization. The Arabic alphabet benefited in its diffusion outside Arabia from the rapid propagation of Arabic as a liturgical and cultural language of the Arabo-Islamic empire. In this way the Arabic script became the script of the Iranian and Turkish languages, a variety of languages of the Indian and the Malayan peninsulas, North Africa, medieval Spain, Slavonic Europe and Black Africa. The various mutations of the Muslim world provoked constant modification in the parallel developments of language, religion and scripts whose contour lines did not necessarily coincide. This is especially evident in modern times where areas converted to Islam at an early date in which Arabic retained its prestige as a religious language, have now witnessed a decline in the use of the Arabic script in favour of the phonetic notation as for example Turkish, Malay, Malagasy or the African languages which now use the Roman and sometimes the Cyrillic alphabet.

The various usages, profane as well as religious for which the Arabic script was used, was also a factor in the enlargement of its territorial scope. The writing practised by government scribes in their compilation of archives or their official documents differed from that of calligraphers working to satisfy the luxurious tastes of an aristocratic patron. The writing of scholars making rough drafts or taking down speeches and discussions as dictation differed from that of merchants writing private letters and statements in accounts which again differed from the makers of amulets and magical diagrams. Other types may have taken shape from the influence of the many different regional milieux and national temperaments which coexisted in the world of Islam and whose heritage it is difficult to define with certainty. The development of paper and its widespread manufacture in the lands of Islam from the 3/9th century facilitated both the transmission of science and the art of writing in providing the most convenient medium that was durable and inexpensive. The practice of writing became a science reserved for skilled experts judged worthy of the double distinction of artist and respected sage and this has remained for centuries the general rule in every Muslim society.

A selection of examples drawn from the fine collection of calligraphy in the Wellcome Institute are displayed and described below.

Kūfī

The Kūfī style of calligraphy flourished from the early period of the Islamic era until the middle of the 4/10th century. It was reserved for copies of the Qurān, works of erudition and pious texts of all kinds which were written on parchment while monumental inscriptions owed it to their astonishing decorative quality. Simple Kūfī became diversified up to the turn of the 6/12th century in the form of various styles often bearing the names of regional dynasties which had favoured them individually and each in particular embellishments corresponding to the many historical and geographical stages in the context of an immense and soon fragmented Islamic empire.

A selection of examples of Qurān leaves in Kūfī script are displayed. They are transcribed on vellum with diacritics in red and date from c. 4/10th century.

Naskh

The Naskh (meaning "act of cancellation or abrogation") style of calligraphy gradually developed from the square "static" and later triangular cursive forms of Kūfī script. After a period of temporary decline it revived during the Mongol period attaining much beauty in the period of Timūrid rule but receded again in the 18th and 19th centuries. The script has a distinctive angular appearance with the relatively fine verticals of the letters rendering it particularly beautiful. It is generally used for transcribing the Qurān. Some fine examples in Arabic are displayed.
Te’iq
This style of calligraphy called Te’iq means "suspension, hanging together" because its letters are connected to one another. It is alleged that the sinuous style of the letters of the Pahlavi and Avestan alphabets played a role in its formation. It was used for writing books and letters and also in the diwanī for official correspondence. By the 7/13th century it emerged in its definite form but was not much in use until the following century after which it gradually declined. The example displayed shows characteristics of the Nasta’liq style in Persian.

Nasta’liq
This script is said in works on calligraphy to have been formed by joining Naskh and Te’iq, the resulting compound gradually coming to be pronounced Nasta’liq. Although it is said to have been invented by Mir ‘Ali Tabrizi (d. 850/1446) the existing manuscripts contradict this view and show that the invention of the script to be as early as the 7/13th century. In Turkey and the Arab countries it is erroneously called Ta’līq. Several fine examples in Persian and one in Turkish are displayed.

Shikasta-nasta’liq
This script came into existence at the beginning of the 11/17th century under the Safavids in Iran, as a result of writing Nasta’liq rapidly and of calligraphers being under the influence of Shikasta-te’iq, itself developed from writing Te’iq rapidly. While Nasta’liq was used in writing literary works Shikasta-nasta’liq was generally used in writing letters as the examples displayed written on gold sprinkled paper, and for official correspondence. Today it is sometimes used for writing poetry in an artistic fashion.

Rayḥāni
This script used in Iran and meaning "the aromatic plant of basil", "having fragrance" is a smaller version of the Muḥaqqaq script. Like Muḥaqqaq, Rayḥāni was used for copying Qur’āns. It started to go out of circulation after the 11/17th century. An example in Arabic is shown.

Riqqah
This style, used by the Turks, was a simplified form of the Diwanī style usually employed for transcribing official documents. The main characteristics of Riqqah are that its letters are less rounded and more straight. Like the Persian Shikasta-nasta’liq, it also became a standard form of handwriting amongst Turks, used for letters and every type of correspondence. In Iran it was used for writing the final pages of Qur’āns and learned books. An example in Arabic is shown.

CASE 7. ASTROLOGY AND ASTRONOMY
Astrology is the study of heavenly bodies with respect to their supposed influence on human destiny. It enjoyed widespread popularity throughout the ancient world particularly in Babylon where the name Chaldaean became synonymous with astrologer. Astronomy was closely related to astrology particularly in antiquity being also the study of the universe, its constituent parts and how they interact; it was from these astronomical studies that calendars were drawn up. The astronomical work of Ptolemy (c. 140 A.D.) known by its Arabic title al-Mīlāṣī had much influence in Islamic lands where in Baghdad a line of distinguished astronomers beginning in the 2/8th century and lasting for four centuries developed the astrolabe into an instrument of high precision. It is to them we owe the names of many of the brightest stars and various astronomical concepts. Through Latin translations of their work scientific consciousness was awakened in medieval Europe.

The horoscope of Iskandar Sultan.
The personal horoscope of Iskandar Sultan, grandson of Timur (d. 807/1405) compiled by Mahmūd b. Yaḥyā b. al-Hasan al-Kāshī, called Imam al-Munajjīm (d. 832/1429).

Iskandar, who ruled Fars from 813/1409 to 817/1414 is best known for his interest in the arts and sciences and for his patronage of the celebrated Shiraz school of painting, of which this manuscript is an exquisite example. Apart from its undoubted artistry, the manuscript throws considerable light on the development of Islamic astrology prior to Ulugh Beg’s observations in Samarqand. It also allows the exact date of Iskandar’s birth, so long disputed, to be fixed with certainty for the first time to 3 Rabi’ I 786/25 April 1384, and as a result permits scholars to determine the authenticity of other manuscripts reported to have been commissioned by him. The manuscript dated 813/1411 is transcribed in Naskh on paper. The opening displayed shows the motions of Mercury. Persian Ms. 474 ff. 5v.


Print showing a lively duck, one of 499 unique marginal decorations. f. 30v.

Print showing a phoenix outlined in black ink and filled with faint grayish blue, pink and shades of gold. The four outer corners of the illustration are decorated with smaller drawings of plants and birds in the same style. This illustration, coming at the end of the manuscript along with a similar drawing at the beginning show the influence of Chinese art on Persian painting of the period 56.

Print showing the position of the heavens at the moment of Iskandar’s birth painted on a double page illustration. In the four outer corners of the painting four angels appear bearing presents including a golden crown. Within a large circle twelve sections are painted representing the astrological houses, and within each section nearer the centre is painted a conventional drawing of a sign of the zodiac. The detail, precision and beauty of the painting speak for themselves. ff.18v, 19v.

Undated (10/16th century) Persian manuscript containing Zīj-i Ulugh Beg, "Tables of Ulugh Beg" copied in Nasta’liq with elements of Naskh. Ulugh Beg (796/1394-853/1449), a grandson of Timur (d.807/1405) and therefore a cousin of Iskandar Sultan, became governor of Turkestān and then emperor in 830/1427. Two years later he was murdered by his son. In 823/1420 he established an observatory northeast of Samarqand,
an ancient and cosmopolitan city once occupied by Alexander the Great and now capital of the Uzbek Soviet Republic. This observatory soon became the main centre of astronomical research in the world. Its existence however was short lived; it is regarded as the last major centre of Islamic astronomy. The tables, also known in their original edition as Zīj-i Khaqānī, "Tables of the Great Khan", were composed no earlier than 841/1437. Although Ulugh Beg supervised, three other mathematicians collaborated: Jamshīd ibn Masʿūd al-Kāshī (d. 982/1578) who it has been suggested was the grandson of Maḥmūd b. Yāhāy b. al-Husayn al-Kāshī, the compiler of the horoscope of Iskandar Sulṭān and who was the first director of Ulugh Beg's observatory; Qādir-Zāda al-Rūmī (d. c. 835/1431), the second director; and Bīlān ibn Muḥammad al-Gusieńī (d. 879/1474-5) who died in Constantinople. The opening shows the table of the rising signs of the zodiac in certain latitudes from the second madījah.

Persian Ms. 449 ff. 157', 158'.

Shaḥr-i zīj-i jahān-i sultānī, "commentary on the astronomical tables of the King" i.e. Ulugh Beg, compiled by 'Abd al-ʿAfīf ibn Muḥammad ibn Ḥasan Birjandī (d. 934/1527-8).

This undated (late 11/17th century) Persian manuscript transcribed in Nastaliq is a commentary on Ulugh Beg's astronomical tables. The opening is from the third section dealing with the pre-Islamic Persian Calendar.

Composite Armenian manuscript copied in small Bolorgir (round-hand) script by the scribe Khachatur dyir in 1795. The principal text displayed is a scientific treatise Yaghge ertmanin sharhman, "Concerning the heavenly movements" composed by the 13th century Armenian philosopher Hovhannes Erznak'ei (of Erindjan) on the request of Baron Vaghtank. The illuminated page represents an astronomer gazing through a telescope. The sun and the moon are depicted just below a band of clouds which supports the signs of the zodiac and above it a starry sky.

Armenian Ms. 63373 ff. 32v, 33v.

Ruznamā-ī Dārevī. Ottoman astronomical tables for both the Arabī and Rumi (Julian) calendars. These calendars provide a detailed chronological account of seasonal change, entry of the sun into signs of the zodiac, the times for sunrise and sunset, etc. At the same time they also include an agricultural almanac in the marginal notes, specifying the tasks to be done, the weather, as well as the date for religious festivals.

Ruznamā-ī Dārevī copied by Muḥammad Emīn Ḥilālī in Riqā' and dated 1225/1810. Turkish Ms. 151.

Ruznamā-ī Dārevī copied by Ketbe Muḥammad Shemseddīn in Riqā' and dated 1227/1812. Turkish Ms. 388.

Ruznamā-ī Dārevī undated (13/19th century) almanac copied in Riqā'. Turkish Ms. 74780

'Ilm-i ferāsāt wa 'ilm-i gıyāfet, Turkish manuscript on physiognomy which claims to be a translation of 'Imām ʿArārī's treatise. Copied in 923/1517 by al-Muḥammad, a scribe, within gold rules.

The opening relates how Plato (Ῥαῖντο) sent a description of his features to Indian physicians for an evaluation of his character. Their judgement was so negative however that Plato's disciples, outraged at such a denigration of their master's character, accused the Indian physicians for being skilled not in physiognomy but in falsehood and deceit. Plato reassured them that the judgement was indeed accurate but he was able to reform his character by self discipline and knowledge. Turkish Ms. 66622 ff. 6v, 7r.

Undated (c. 11/17th century) Indo-Persian astrolabe made of brass with four plates for use at latitudes between 14° and 45°. A list of towns is inscribed in the inner surface of the urn; they include Dehīl, Benesara, Lahore, Mecca and Medina. The astrolabe is the most important instrument of medieval Islamic and western astronomy. Thought to originally have been invented by Hipparchus around 150 B.C., it was developed into an instrument of high precision in the Islamic lands and used in astronomy and geography to measure altitudes, determine the hour of the day and night, and to cast horoscopes. These astrolabes were a few of its uses in solving various astronomical and geographical problems.


CASE 8 ALCHEMY

Alchemy was the chemical science and speculative philosophy the main purposes of which were the transmutation of the base metals into gold, the discovery of the universal cure for diseases and the means of indefinitely prolonging life. It is said that the ancient Egyptians discovered chemistry as well as astrology, the derivation of the word being associated with the Egyptian kem meaning black, hence the reference to sorcery as black magic in our own time. Once the alchemists realized they were unsuccessful in producing precious metals or panaceas many turned to pharmacology. There was hardly a by-product of metal refining that could not be used as a drug at least on an experimental basis. The pharmacopoeias which originally comprised drugs from animal and vegetable sources was now steadily enlarged with drugs of mineral origin. Many mineral products may have proved toxic and so the obvious course was to use them in combination as formulated drugs with each individual component present in subtoxic amounts. Other discoveries included previously unknown forms of administration, the chief of which was the electroly widely used in the ancient Orient.

Preparation of a medicine. Medieval Europe learnt much from Arab pharmacognosy which not only passed on the knowledge of classical antiquity but helped systematize and catalogue it. The Islamic world at this time concerned itself not only with the actual drug but also with its dosage form. Fundamental concepts such as a "potentiation" were discovered and more pleasant forms of administration elaborated. The most common form of administration today, the dragee, can be traced back to medieval Islamic pharmacy.

Part of an illustration from a manuscript in the Golubew collection at the Boston Museum of Fine Art.

13/18th century fitted box of Persian scales and weights containing:- two pairs of steel-beam equal-arm balances with brass pans suspended by red silk cords; gallows suspension with knife-edge fulcrum, and set of seven small engraved steel weights, octagonal shaped with knob handles. Lent by the Science Museum, London. Inv. 1954-684.

CASE 9 MATERIA MEDICA

Materia medica and the whole area of pharmacopoeia attained great distinction in the Islamic world and became the standard authority on the subject throughout medieval Europe. Even in modern times the eminent medical scholar William Osler (1849-1919) has remarked "that the heavy hand of the Arabian" is sensed in the enormous bulk of present day pharmacopoeias. Much of this material was derived from the Greeks, especially Dioscorides (fl.50 A.D.), the first to write on medical botany as an applied science. His work was translated into Arabic at Baghdad in 920/854, at Cordova in 930/851 and again into Syriac by the Christian writer and historian Bar Hebraeus in the 7/13th century, so influencing the whole practice of medicine among the Islamic peoples. Many major Islamic medical writers included a section devoted to materia medica in their work or wrote specifically on the subject. The principal storehouse however, of Islamic materia medica is the Jami' of Ibn Baytār, a large compendium of the 7/13th century describing some fourteen hundred drugs, of which three hundred were claimed to be new.

Undated (11/17th century) Arabic manuscript transcribed in Naskh containing al-Burhan ff asrar 'ilm al-miṣān "Demonstration of secrets of the balance" composed by Aidamur b. 'Aff b. Aidamur al-Jīdrākī 'lṣz al-Dīn (d.743/1342). The manuscript which comprises only book I of this work was transcribed from a copy which contained an Ḥijāj annā, i.e. "the book was read before a scholar and approved by him." al-Jīdrākī was the last important Muslim alchemist to write in Arabic but came too late to influence western science. Some twenty treatises are ascribed to him including the work exhibited which is divided into four parts dealing with natural history, physics and metaphysics as well as alchemy. The fourth part is represented by Arabic Ms. WMS 29b. The opening is from the eleventh bāb (on heavenly bodies) from the first juz' (on the unity of Allāh). It shows the relationship between the heavenly bodies and the earth depicted by the letters of the alphabet.

Arabic manuscript in 1012/1603 in Naskh containing al-Burhan ff asrar 'ilm al-miṣān, "Demonstration of secrets of the science of the balance" composed by Aidamur b. 'Aff b. Aidamur al-Jīdrākī 'lṣz al-Dīn (d.743/1342). The manuscript exhibited comprises only book 4 of this alchemical work and the opening displayed shows the beginning which deals with plants.

Arabic Ms. WMS OR 29b ff.1v, 2v.

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Undated (11/17th century) Arabic manuscript transcribed in beautiful Nasta'liq with rubrications containing Aḥḵām al-adwiyya al-qalibiyā, "Rules about medicines of the heart" composed by Abū 'Abd-Allāh ibn Sinā. (370/980-428/1037). See caption 3 for information on Ibn Sīnā. The manuscript opened at the beginning shows an exquisite gilded headpiece.

Arabic Ms. WMS OR 174 ff. 31v, 32r.


Abū al-Ṣalt 'Umayyā came from the Levant and spent some time in Alexandria and Cairo where in consequence of an unsuccessful attempt to refloat a sunken ship he was imprisoned by the vizier. Exiled from Egypt he spent the rest of his life in al-Mahdiyya. He wrote a number of works on various scientific topics including the materia medica displayed which was translated into Latin by Arnold of Villanova (1235-1312).

The opening displayed shows the conclusion of a section on general medicine followed by a section concerned with simple medicines to cure diseases of the bones.

Arabic Ms. WMS OR 73 ff. 1v, 2r.


Arabic Ms. WMS OR 52b ff. 48v, 49r.

Undated (10/16th century) Arabic manuscript copied in Naskh with tables and previous owner's entries - Abū Bakr Rustum b. Ṭāhā b. Mḥmud and Muḥammad Waṣīf b. Ḥasan, a physician. The manuscript contains Taqwil al-adwiyya, "Tabulation of drugs" composed by Abū al-Faḍl Ḥubayysh b. Ḣabībīm b. Muḥammad al-Tīfīlī (fl.7/13th century). The opening shows giving the names of different medicines, their origins, nature and properties, side effects and the comments of various celebrated physicians in history.

Arabic WMS OR 53 ff. 18v, 19r.

Undated (late 9/15th century) composite Persian manuscript containing Mīẖāl al-khāzin, "The key to the treasures", composed by Zayn al-Dīn Abī-Allāh al-Ḥusayn al-Anṣārī (730/1332-806/1403) physician for sixteen years to Sultan Shāh Shuja (765/1364-786/1384) himself the author of a work on birds of prey shown in Cabinet 11. The work which was completed in 760/1360 comprises three parts dealing with simple medicaments in alphabetical order, exchanging and improving them also in alphabetical order and a third section on compound medicaments. The manuscript is copied in Naskh and the opening displayed describes drugs beginning with the Arabic letters taʾ, thaʾ and ʾim. Only one other copy of this work is known to exist in Europe in the Bodleian library.

Persian Ms. 524 ff. 4v, 5r.

Persian manuscript containing Ikhtiyār-i Badī, a materia medica composed by Zayn al-Dīn Abī-Allāh al-Ḥusayn al-Anṣārī (730/1332-806/1403) and completed in 770/1368-9. It is dedicated to an unidentified princess, Malika Badī al-jamāl, and is divided into two parts; the first on simple medicaments in alphabetical order, the second on compound medicaments in sixteen sections. The manuscript displayed was copied in 1168/1758 by a scribe in Naskh within gold rules. The opening exhibited is from the first section and describes simple medicines beginning with the Arabic letter ʾin.

Persian Ms. 54 ff. 121v, 122r.

The preparation of an antidote against tarantula bite. The medicine is prepared in a mortar according to instructions read from a book resting on a book stand. In medieval times the pharmacist as a distinct profession was still unknown, the dispenser of medicines being the physician himself who as a rule maintained his own pharmacy. Print of an illustration from an Arabic manuscript of the Baghdad school of a pseudo-Dioscorides work copied in 621/1224. The Freer Gallery of Art, Washington.

8/14th century octagonal bronze mortar from Iran in which drugs would have been prepared.


Islamic pharmacy jar bearing an illustration of two kneeling female figures framed by foliage with two structures in the background.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 113962

Islamic pharmacy jar bearing an illustration of two kneeling female figures flanked by foliage with two structures in the background.

Lent by the Wellcome Museum of the History of Medicine at the Science Museum, London. A 113964

CASE 10 ANATOMY

Due to the dictates of the Qurʾān Moslems did not undertake dissection of the human body. They did however continue the researches of the Greeks and made important advances which were almost entirely the result of animal studies. It was from such studies that Ibn an-Nafīs during the early 7/13th century was able to describe the circulation of the blood between the heart and lungs. Rhazes, Haly Abbas and Avicenna all included sections devoted to anatomy in their major medical
works while Mašur ibn Muḥammad Ilayš, writing in the late 8/14th century, composed an illustrated treatise on anatomy in Persian. This treatise, composed of anatomical drawings whose derivation has been attributed to ancient Alexandria. They would appear to represent the ultimate result of the kind of compression of Galenic works that we know went on in medical teaching in late antiquity and the early Middle Ages. It is significant that Galen wrote introductory texts on five anatomical topics, the arteries and veins combined into a single treatise, the nerves, the muscles and the bones. These treatises formed part of the so-called "sixteen books" of Galen as used in the school of Alexandria. According to Ḥunayn ibn Ishāq the Alexandrians divided the single treatise on arteries and veins into two and gave the single title "on anatomy for students" to the collection of five treatises. A further four figures have also been identified and related to the next group of Galen's hierarchy of structure having "function" in place of mere action, and taught to students after the similar parts. The gravid uterus shown here would appear to derive from this group.

This anatomical tradition is reflected in the east as demonstrated by a print from a Tibetan anatomical diagram and in the west as shown in a medieval English manuscript.

Undated (late 12/18th century) Persian manuscript Tashrīḥ-i Mašur, "Anatomy of Mansur" composed by Mansur ibn Muhammad ibn Ahmad ibn Yusuf ibn Faqih Ilayš (d. after 826/1422). This work was dedicated to Sultan Dāyā al-Dīn Amīr-i sādūr Muhammad Bahādur Khan (i.e. probably P.M. b. ʿUmar Shaykh b. Tūmar ruler of the province of Fars 796/1394-812/1409), a grandson of Tūmar and brother of Iskandar Sultan whose horoscope is displayed in Case 8. The work is divided into an introduction (mugaddima), five chapters (maqāla) and a conclusion (khatmā) dealing with respectively: the description and division of the organs, bones, nerves, muscles, veins, woman's body with womb containing ripe fetus. The manuscript is transcribed in Shīkhasta-nastaʾliq and the opening displayed shows the venous system on the left, the nervous system on the right. Persian Ms. 449 ff.31', 22'.

Undated (early 13/19th century) Persian manuscript Tashrīḥ-i Mašur, "Anatomy of Mansur" composed by Mansur ibn Muhammad ibn Ahmad ibn Yusuf ibn Faqih Ilayš (d. after 826/1422) transcribed in Naskh. The opening shows the conclusion of the maqāla describing the nervous system and the opening the beginning of the maqāla on the muscles. Persian Ms. 619 ff.9', 10'.

Undated (late 12/18th century) group of four Persian broadsides from Tashrīḥ-i Mašur copied on western paper and showing: arterial system, gravid uterus, muscles, skeletal system.

Persian broadside copied on western paper depicting the "zodiac man" Tierkreiszeichnungen in which different parts of the body are shown to be influenced by various planetary conjunctions. The appropriate times and places for different treatments are indicated by the signs of the zodiac. Astrology was a feature of medicine in both the east and west as is illustrated in similar diagrams such as the "bloodletting man" Adlersmaann whose body is tattooed with marks indicating the best site for venesection under the signs of the zodiac.

Print of a section from a 19th century Tibetan anatomical chart painted on linen and used to give instruction on anatomy to Tibetan students of medicine. Originally discovered in 1904 by Col. Waddell of the Youngusband expedition in the medical college at the Ichaps po-ri monastery in Tibet, these drawings have been attributed to the Mongol period of transmission. The squattting position bears a similarity to the post-Alexandrian figures reflected in Mansur's drawings and suggests their transmission to Tibet through India and China. Tibetan Ms. 119.

Undated (mid 15th century) English manuscript copied on vellum in a gothic hand containing Anatomia, a pseudo-Galenic work. The opening displayed shows an anatomical drawing of a pregnant female. The squattting position and the employment of the entire figure to illustrate visceral anatomy have a marked similarity to the anatomical drawings of Mansur and probably reflect a common Alexandrion antecedent. WMS. 290 f.52'.

CASE 11 VETERINARY MEDICINE

Although dissection of humans was forbidden to Islamic physicians, they continued the investigative analogical approach of the Greeks in anatomy making important advances regarding the eye, the liver and heart: these advances came almost entirely from animal studies. The Arabs have always been great lovers of the horse. The early 8/14th century work Kībīb al-Nāṣirī composed by Abu Bakr ibn Badr al-Dīn ibn al-Mundhir al-Rayyār, veterinary surgeon to the Mamluk sultan, al-Nāṣir Nasīr al-Dīn Muḥammad ibn Qalāʾūn (684/1285-741,2/1340),\(^{1}\) was unequalled in equine medicine both in Europe and the east before the 18th century. Avian medicine is said to have had its genesis in the Islamic world many earlier physicians and scientists having written on the subject.


The author of this work was the fifth sultan of the learned Rasūl dynasty of Yemen. It is divided into six parts dealing with the breeding, maintenance and training of domestic animals and includes information of interest to zoologists and veterinary scientists. The opening shows part of the table of contents relating to the characteristics of horses.

Arabic Ms. WMS. OR. 107 ff.5', 6'.

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as frontlets between the eyes as well as to write them upon the door posts and the gate (Ex 13:16; Dt 6:8; 11:18). Amulets were used in the early Christian church hence the emphatic protests of Chrysostom, Augustine and others against them.

A selection of amulets from the Islamic and Semitic language collections in the Wellcome Institute are displayed.

Undated (c. 18th century) Hebrew manuscript copied on vellum in square script comprising an amulet for protection of Moses David, son of Esther from plague above which is a mystical permutation of Hebrew letters contained in the Hebrew word for plague in the left hand column. Displayed with the amulet is the case in which it is enclosed.

Hebrew Ms. A 27 f. 1.

Undated (c. 18th century) Hebrew manuscript copied on vellum in square script, comprising an amulet for the protection of Bela daughter of Rachel from plague above which is a mystical permutation of Hebrew letters contained in the Hebrew word for plague in the left hand column.

Hebrew Ms. A 26 f. 1.

Undated (c. 17th century) Hebrew manuscript copied on paper in cursive Italian hand comprising a feudality charm.

Hebrew Ms. A 25 f. 1.

Undated (c. late 19th century) Malay manuscript comprising amulets for invulnerability and safe child delivery in the Arabic or Jawi script of Malay, written on western paper. The manuscript forms part of the Hervey Malay collection in the Wellcome Institute, once the property of a British administrator in the Straits Settlements during the late 19th century. Dudley Francis Amelius Hervey (1849-1911) was the son of the Revd. Lord Charles Amelius Hervey, rector of Chesterford and grandson of the first Marquis of Bristol. He joined the Straits Civil Service in 1867 and was the first "cadet" of the service, which was established when the Colonial Office assumed control of the Straits Settlements following their separation from India. Like many scholar officials of his time he collected local information concerning the area relying heavily on his Malay writer Munsif Muhammed Jaafar.

Well. Mal. 2E ff. 5', 6'.

Undated (18-19th century) Ethiopian manuscript composed of a scroll in two strips of vellum clearly written in black and red ink and containing amulets and prayers against evil eye comprising the legend of the witch seen by the Apostles on the shore of the Sea of Galilee, protection against the evil eye, malaria, colic, a prayer to Phanuel the expeller of devils, and charms for blacksmiths.

Undated (13/19th century) Turkish manuscript written on paper in Riga script containing certain prayers and "seals" of the prophets (mühr-dí nubuuvvet) for use in daily affairs as well as in treatment of various diseases. The diagram shows the "seal" of Moses which, according to the text, he carried into battle against Pharaoh!

Turkish Ms. no. 55059 ff. 101, 102'.
Undated (19th century) Arabic manuscript of an amulet inscribed with ink on wood and containing verses from the Qur'an. It was presented to Sir Henry Wellcome (1853–1936) in 1913 while supervising a programme of excavation at Jebel Moya, an archaeological site midway between the Blue and White Nile. This programme of excavation was set up by Sir Henry in response to Lord Kitchener’s request for help in providing for the welfare of the Sudanese. The finds from Jebel Moya, dating from 1000–400 B.C., have made a significant contribution to the history of the Middle East and North Africa.

Digging Lemnian earth (Terra Lemnia). Terra Lemnia is a red or reddish brown clay (Bolus rubra) found on the Greek island of Lemnos in the northeastern Aegean Sea; the name also designates similar deposits of various origins. The Terra Lemnia (sigillum = seal) was impressed with a seal containing a pious text for use as an amulet and was recommended in ancient times as an antidote against poisoning. Both in the Orient and Europe during the Middle Ages the use of Terra Lemnia in one form or another was highly regarded in medical practice.

Print of an illustration from a 13th century Materia Medica of Dioscorides in Arabic translation at the Freer Gallery of Art, Washington.

Five red Terrae sigillatae each stamped with the Maltese cross and surmounted with a crown within a circular depression; c. 14th to 16th century.


CASE 13 ISLAMIC SCIENCE IN THE MEDIEVAL WEST.

There was also a doctor of phisik, In at this world ne was ther non him lyk To speke of phisik and of surgerye; For he was grounded in astronomye.

Wel knew he the olde Escalipius, and Deiscorides, and eek Rufus; Old Ypocras, Helie and Galen;

Serapion, Razia, and Ayczon Averroola, Damesen, and Constantyn; Bernard, and Gathisden and Gilbertyn.

General Prologue 1.411-414, 429-434.

All the medical writers mentioned by Chaucer [c. 1340–1400] in his description of the physician in the General Prologue were standard authorities used by European medical students and were often to be found in both university libraries and curricula and in the private collections of physicians. It will be noted from the above quotation that a number of Islamic physicians were well established as medical authorities in the west by Chaucer’s time.

The school of Salerno, distinguished for medicine in the 11th and 12th centuries, is said to have been founded by four westerners, "a Greek, a Latin, a Jew and a Saracen", which may symbolise the synthesis of cultural influence that began to take place between east and west in the early Middle Ages. Islamic medicine was introduced to Salerno by Constantinus Africanus (c. 1020–1087) and by the 13th century Islamic culture was securely grafted on to European medicine by means of Latin translations. Writers on the practice of medicine were sometimes called "Arabists" on account of their attachment to the writings of Galen as transmitted through Islamic sources. The great centre of this translating activity was Toledo which, after falling into the hands of Christians in 1085, was sought by all for its rich store of Arabic manuscripts. In this work of transmitting Hellenistic culture from Arabic into Latin, Spanish Jews who were fluent in Arabic were the natural intermediaries.

A selection of medieval western manuscripts comprising Latin translations of Islamic medical authors are displayed.

Undated (14th century) Latin manuscript copied on vellum of Book 5, (the Pharmacopoeia) of the Canon of Avicenna (Ibn Sinā 370/980–428/1037) in the translation of Gerard of Cremona (c. 1114–1187) This celebrated work formed the basis of medical teaching in both the east and Europe where it was studied in universities as far north as Scotland.

The translator, Gerard of Cremona, who lived most of his life in Toledo was a prolific transmitter of scientific and philosophical works from Arabic into Latin during the Middle Ages making them available to scholars in medieval Europe.

WMS. 104 f.1r.

Undated (mid 14th century) Latin manuscript in a neat gothic hand, probably of Italian origin, copied on vellum of Liber divisionum. Antidotarium, Synonymum, the pharmaceutical section of the Kitāb al-Hawi composed by Rhazes (q. c. 313/925). This encyclopaedic work devoted to medicine contained many extracts from Greek and Hindu authors along with observations of his own and earned for Rhazes in both the Islamic world and the west the distinction of being the greatest clinician in medieval Islam. The list of synonyms has been ascribed to Yahyā ibn Maṣawāyah (Māṣū d. 160/777–243/857) and also to Yahyā ibn Sarafīyūn (Serapion the Elder II, 3/9th century).

The translation of this first treatise is ascribed to Gerard of Cremona (c. 1114–1187). The opening exhibited shows a list compiled by the scribe of the work which he has completed and the number of letters he has illuminated.

WMS. 679 ff. 33v 34r.

Undated (early 16th century) Latin manuscript transcribed on paper in several hands and comprising a commonplace book put together by an Italian physician Antonio Giovanni Scandolisi (fl. late 15th/early 16th century). The opening displayed contains extracts from the Colliget on materia medica by Averroes (Ibn Rushd 529/1126–596/1198). This encyclopaedic work written before 1192 is arranged in seven sections treating anatomy, health (physiology), general pathology, diagnosis, materia medica, hygiene and general therapeutics. It is however much
The opening shown displays the end of part one and beginning of part two of this medical compendium.
WMS. 207 ff. 16°, 17°

CASE 14. THE ADVENT OF PRINTING

The gradual increase in the transmission of Islamic culture including Hellenistic it had absorbed throughout the Middle Ages was given added impetus at the end of this period. The fall of Constantinople in 1453 and the resulting emigration of many Byzantine scholars to the Italian peninsula gave rise to a full scale revival of interest in Hellenistic culture in the west and marked the beginning of the Renaissance. Perhaps of even more importance to the dissemination of Islamic science in the west was the printing of the Gutenberg Bible in 1454, the date referred to as the beginning of the use of moveable type which revolutionized the world of learning and for the first time brought the knowledge of science and scholarship to a much larger public. This in turn provoked the development of independent thought characteristic of the age.

Presses were set up in Strasbour (1460) and Bamberg (1461), while Johann Speyer and Nicolas Jenson began to print at Venice in 1469; by the end of the century presses had been set up in many towns throughout Europe. The Renaissance versions and editions of these early presses are not only remarkable for the excellence of their typography but are usually furnished with good tables of contents, sometimes even with subject and author indices at the end giving accurate paginations.

A selection of examples from the Wellcome Collection are displayed.

al-Qanun fi al-tibb composed by Ibn Sina, "Canon" of Avicenna. Printed in Rome at the Typographia Medicea in 1593, this is the first printing of the Arabic text of this celebrated Islamic medical work. In the west several physicians learned Arabic to obtain a better understanding of the works of Ibn Sina. The first known influence appears in the works of a Dane, Henrik Harpestraeng, a royal physician who died in 1244, and at the University of Bologna anatomy was still being taught in Arabic terms in the 14th century.

The opening displayed shows the title page.
Medical Society of London Purchase f.1

Ha-ja'ūn of Ibn Sina, "Canon" of Avicenna in the Hebrew translation of Joseph Lorki and Nathan ben Eliezer ha-Me'ati. Printed in Naples by Asher ben Perez Minz and Abraham ben Jacob Landau at the printing establishment of Azriel ben Josef and completed on the 9th November 1481, this is the first printing of a medical work in Hebrew.

Of the first of the two translators we know little but the second, Nathan ben Eliezer ha-Me'ati was the earliest member of a distinguished family of translators who flourished in Rome during the 13th and 14th centuries. Nathan called "Prince of Translators" lived in Rome from 1279 to 1293 but his native place seems to have been Cento hence his name "Me'ati" which is the Hebrew for "Cento" (100). After acquiring many languages during his long wanderings, he settled in Rome where he translated
The opening exhibited from the second section concerns midwifery and shows a selection of gynaecological instruments including forceps, hook or crochet and probes.

No. 3017 ff. 25v, 26v.

Liber totius medicinae necessariae continens, quem...Haly filius Abbas...ediit...regulae inscriptae...composito...Haly Abbas...("All b. 'Abbas al-Majusi H.4/10th century").

This great treatise concerned with the theory and practice of medicine and entitled in its original Arabic as Kamal al-sina'a al-Tibbiyah "Complete art of medicine" or al-Malaki "the royal book" was first translated in part into Latin by Constantine the African. Subsequently the whole work was rendered into Latin in 1212 by Stephen of Antioch with annotations by Michael de Capella. This translation was first published under the title Liber regalis dispositio nominatus ex arabico venetissi...Venice, (1492). A subsequent reprint which is shown here appeared under the title Liber totius medicinae necessariae continens...printed in 1523 by J. Mynt at Lyons. The title page is displayed of a volume successively owned by Leonardo Botallo of Asti, physician to Francis I of France, Turquet de Mayeren, (1573-1658) physician to James I of Great Britain, and John Channing the distinguished 18th century editor of Abulcasis.

Medical Society of London Purchase f.1r.

CASE 15. ISLAMIC STUDIES IN ENGLAND FROM THE 16TH TO EARLY 18TH CENTURIES.

The impetus for the study of the languages of the Islamic world came from the continent under the combined influence of the Renaissance and the Reformation. The study of the Bible in its original languages stimulated an interest in Hebrew which following an Act of Parliament in 1536 was taught at Oxford and Cambridge. James I ordered a new translation of the Bible which was published in 1611 as "Newly translated out of the original tongues and with the former translations diligently compared and revised by his Majesties special Commandment". In the 17th century scholars of Arabic were established at Oxford and Cambridge. Manuscripts were collected, grammar, history and travel books pertaining to Islam were printed. This, along with increasing expansion of trade with the Islamic world, gave rise to a small but distinguished group of English savants concerned with the study of Islam, its culture, history and languages.

Grammatica Arabicca written by Thomas Erpenius and printed in Leiden at the Raphelangius Press in 1613. Thomas Erpenius (1584-1624), the distinguished Dutch orientalist, studied at Leiden and travelled in several European countries including England. While in Paris he took lessons in Arabic from an Egyptian and perfected his knowledge of Turkish, Persian and Ethiopian in Venice. In 1613 he was appointed professor of Arabic and oriental languages except Hebrew in the University of Leiden, and in 1619 the university authorities instituted a second chair of Hebrew in his favour. He had new Arabic characters cut at great expense and created a press in his own house. Erpenius
published a number of works relating to oriental history and grammar; the fourth enlarged edition of Purchas his pilgrimage published in 1626 includes a section entitled the Sasanian Empire translated from Arabic by him. His Grammatica Arabica was often reprinted and much used in teaching Arabic in England and elsewhere. The opening shows a table of the Arabic alphabet with the numeric values, names, pronunciation and forms of the individual letters.

No. 7196 p. 1.

Geographica Nubieniæ, ïd est accuratissima totius orbis in septem climata divisæ descriptione... Recens ex arabico in latinum versa G. Sionata et J. Hesronita written by al-Sharif al-Idrisî (d. c. 580/1185) and printed in Paris by H. Blaegeart in 1619. This work is an abridgement of a descriptive geography originally written in Arabic with the title Kitâb nuzhat al-mushîq fi ikhtiraq al-âfaq which was composed by order of Roger II, the Norman king of Sicily as a key to a large silver planisphere which the author himself had made. Al-Idrisî's work represents the best example of Arab–Norman scientific collaboration in geography and cartography of the Middle Ages. For several centuries the work was popular in Europe as a text book. The abridgment was among one of the first secular Arabic works printed by the Medici Press in Rome in 1592. It was subsequently translated into Italian in 1600 and was published in the Latin translation of two Maronite Christians, Gabriel Sionita and Joannes Hesronita in Paris in 1619.

The copy displayed is distinguished by having the annotations of Edward Pococke (1604–1691) the celebrated orientalist and collector of oriental manuscripts now in the Bodleian Library, Oxford. He was at one time the pupil of William Bedwell (1561/2–1632), the father of Arabic studies in England, and was the first occupant of the chair of Arabic established by Archbishop Laud at Oxford. During the Commonwealth period Pococke suffered much political harassment but continued his studies while vicar of the parish of Childrey in Berkshire finally returning to Oxford as professor of Hebrew at the Restoration.

The opening shows the third part of the first clime with Pococke's annotations and corrections.


A geographical historie of Africa written in Arabicke and Italian ... wherein ... [is] described ... the regions cities, townes, mountains rivers ... throughout all the north and principall partes of Africa. ... Translated and collected by John Pory. This work was originally written by Leo, the African (c. 890/1185 – after 962/1554) also known as al-Hasan Ibn Muhammad al-Wazzân al-Zayyâf al-Gharnâfi. Leo was born in Granada, some five years before the fall of the kingdom and his family's exile to Fez where he was educated. His geographical knowledge was based on the medieval Islamic geographical corpus and on direct observations collected from four journeys, the last of which, as Moroccan ambassador to the Ottoman court, took him to Constantinople and then to Egypt, Arabia and Tripoli. Here he was captured by Italian pirates, transported to Italy and given as a slave to Pope Leo X. He converted to Catholicism under the aegis of the Pope whose name he took upon baptism. In 1529 he returned to Tunis and was reconverted to Islam.

In Italy Leo wrote his geographical treatise in Italian entitled Della descrittione dell' Africa which was a substantial addition to the impoverished knowledge of African geography inherited from the Middle Ages. John Pory (1570–1630) at the instigation of his friend Richard Hakluyt (1553–1616) translated Leo's work into English adding some of his own notes. The translation was printed in London by George Bishop in 1600, a copy of which is exhibited. John Pory represented the borough of Bridgewater, Somerset in Parliament between 1605 and 1610. He was a traveller and geographer familiar with Europe, the Ottoman Empire and America where he was secretary to Sir George Yeardley, governor of the colony of Virginia. In his early days he had been a pupil of Hakluyt who in vol. 3 of his Voyages conceived of him possessed of "a peculiar skill and extraordinary hope to perform great matters in the same, and beneficial for the common wealth". The opening displayed shows the map of Africa and the beginning of a general description of the continent.

No. 3729 p. 1.

The principal navigations, voyages, traffiques and discoveries of the English nation ... written by Richard Hakluyt (1553–1616) and printed in three volumes in London by George Bishop, Ralph Newberie and Robert Barker in 1599, 1600. Richard Hakluyt was the leading advocate and chronicler of English overseas expansion during the reigns of Elizabeth I and James I. His cousin, a lawyer in the Middle Temple, introduced him as a schoolboy to maps and books on cosmography so firing his lifelong interest in the new and rapidly developing subject of geography. With Spain and Portugal already in possession of rich empires in America and Asia he saw the need for England to establish her own routes to the coveted regions of the Orient and to acquire her own sphere of influence in lands not yet annexed. Hakluyt's major contribution to geographical knowledge lay in three great collections of voyages the third of which is displayed. This work, an enlargement of a previous similar work, was based on such original sources as the journals of explorers, sailing directions, and reports by merchants and seamen many received by Hakluyt himself. It was a handbook of Elizabethan discovery and exploration acclaimed as the prose epic of the modern English nation. The opening exhibited shows a letter in Latin and English translation from Elizabeth I to the Great Sophy of Persia sent in 1561 by her emissary Anthonie Jenkinson, for the purpose of opening up trade and granting safe conduct to the emissary and his servants. It is interesting to note that the letter was also written in Italian and Hebrew.

No. 3046 pp. 340, 1.

Purchas his pilgrimage. Or relations of the world and the religions observed in all ages and places discovered ... with briefe, descriptions of the countries, nations, states, discoveries ... written by Samuel Purchas (c. 1575–1626) and printed in London by William Stanley for Henrie Fetherstone in 1613. Samuel Purchas was the author of three travel books the best known being Hakluytas Posthumus or Purchas his Pilgrimes, containing a History of the World in Sea Voyages and land
Travels by Englishmen and others ... Its intrinsic value is due to its record of early voyages otherwise unknown. He inherited many of Hakluyt's manuscripts from which he doubtless drew for his own work.

In the opening displayed Purchas describes the Saracens and the derivation of their name.
No. 5292 pp. 192, 193.

The history of the Saracens ... illustrating the religion, rites, customs and manner of living of that people ... collected from the most authentic Arabic authors ... written by Simon Ockley and printed in Cambridge by Henry Lintot for Miss Anne Ockley daughter of the author in 1737. This is the third edition of what constitutes Ockley's single title to fame. The work, based on manuscripts in the Bodleian Library, although not completely accurate, adopted a popular method which made the history of the early Saracen conquests attractive to the general reader and stimulated the student to further research.

Simon Ockley (1678-1720), an impecunious vicar of Swavesey in Cambridgeshire, was a pioneer in oriental scholarship, and a disciple of Edward Pococke (1648-1727) son of Edward Pococke first occupant of the Laud chair of Arabic at Oxford. It was to Edward Pococke he dedicated his work Improvement of human reason exhibited in the Life of Hai Ebn Yokdhan in 1708. In 1711 he was appointed to the chair of Arabic in Cambridge. The opening exhibited shows an illustration of the Ka'ba in Mecca from the section on the life of Muhammad.
No. 39038/B p. 4.