

PREFACE

The ten authentic medical treatises of Moses Maimonides lay dormant in manuscript form for many centuries. Over the past quarter century, Hebrew editions of these works were published under the editorship of the late Süssman Muntner of Jerusalem.

The past few years has seen the publication of several of these works in English including Maimonides' treatises on Asthma (1963), Regimen of Health (1964), Poisons (1966), Hemorrhoids (1969), Responsa (1969), Aphorisms (1970-71), and Sexual Intercourse (1974). The present work represents one of the remaining three Maimonidean treatises not yet available to the English reader. It is an important work as described in the introductory section.

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1. THE MEDICAL WRITINGS OF MOSES MAIMONIDES

Moses, son of Maimon, (Rambam in Hebrew, Abu Imran Musa Ibn Maimun in Arabic) was born in Cordova, Spain on March 30, 1135 corresponding to Passover eve of the Hebrew year 4895. His mother died in childbirth and consequently his father Dayan (judge) Maimon raised him. Persecution by the Almohades, a fanatical group from North Africa, forced the Maimon family to flee Cordova in the year 1148. Maimonides was 13 years old. The family wandered through southern Spain and northern Africa for the next ten years and finally settled in Fez, Morocco in 1158.

Little is known of Maimonides' early life and medical education. There are no sources indicating that Maimonides had any formal medical education. In his Medical Aphorisms (see below), he mentions "the elders before whom I have read"; this is the only allusion to some semi-private study of medicine. A few times he mentions the son of Ibn Zuhr from whom he heard teachings of the latter's illustrious father (the great physician Abu Marwan Ibn Zuhr) whom Maimonides held in great esteem.

Maimonides must have been an avid reader since his medical writings show a profound knowledge of ancient Greek authors in Arabic translations, and Moslem medical works. Hippocrates, Galen and Aristotle were his Greek medical inspirations and Rhazes of Persia, Al Farabi, and Ibn Zuhr, the Spanish-Arabic physician, are Moslem authors frequently quoted by Maimonides.

The Maimon family left Morocco in 1165, traveled to Palestine, landing in Acco, and from there to Egypt where they settled in Fostat (old Cairo). Maimonides turned to medicine as a livelihood only after the

death of his father in 1166 and the death of his brother in a shipwreck shortly thereafter. Maimonides was left with his brother's wife and children to support and, after a year's illness following his father's death, entered into the practice of medicine. In 1174, at age 39, he was appointed Court Physician to Visier Alfadhal, Regent of Egypt during the absence of the Sultan, Saladin the Great, who was fighting in the Crusades in Palestine. It was at this time that Richard the Lion-Hearted, also fighting in the Crusades, is reported to have invited Maimonides to become his personal physician, an offer which Maimonides declined. His reputation as a physician grew in Egypt and neighboring countries and his fame as theologian and philosopher became worldwide.

In 1193, Saladin died and his eldest son, Al Afdal Nur ad Din Ali, a playboy, succeeded him. As a result, Maimonides' medical duties became even heavier as described in the famous letter he wrote to his friend, disciple and translator, French Rabbi Samuel Ibn Tibbon, in the year 1199:

"....I live in Fostat and the Sultan resides in Cairo; these two places are two Sabbath limits (marked off areas around a town within which it is permitted to move on the Sabbath; approximately one and one-half miles) distant from each other. My duties to the Sultan are very heavy. I am obliged to visit him every day, early in the morning, and when he or any of his children or concubines are indisposed, I cannot leave Cairo but must stay during most of the day in the palace. It also frequently happens

that one or two of the officers fall sick and I must attend to their healing. Hence, as a rule, every day, early in the morning, I go to Cairo and, even if nothing unusual happens there, I do not return to Fostat until the afternoon. Then I am famished but I find the antechambers filled with people, both Jews and Gentiles, nobles and common people, Judges and policemen, friends and enemies, -- a mixed multitude who await the time of my return.

I dismount from my animal, wash my hands, go forth to my patients, and entreat them to bear with me while I partake of some light refreshment, the only meal I eat in twenty-four hours. Then I go to attend to my patients and write prescriptions and directions for their ailments. Patients go in and out until nightfall, and sometimes, even as the Torah is my faith, until two hours and more into the night. I converse with them and prescribe for them even while lying down from sheer fatigue. When night falls, I am so exhausted, that I can hardly speak.

In consequence of this, no Israelite can converse with me or befriend me (on religious or community matters) except on the Sabbath. On that day, the whole congregation, or at least, the majority, comes to me after the morning service, when I instruct them as to their proceedings during the whole week. We study together a little until noon, when they depart. Some of them return and read with me after the afternoon service until evening prayer. In this manner,

I spend the days. I have here related to you only a part of what you would see if you were to visit me ..."

Maimonides was also the spiritual leader of the Jewish community of Egypt. At age 33, in the year 1168, shortly after settling in Fostat (old Cairo), he completed his first major work, the Commentary on the Mishnah. In 1178, ten years later, his magnum opus, the Mishneh Torah was finished. This monumental work is a 14-book compilation of all Biblical and Talmudic law and remains a classic to this day. In 1190, Maimonides' great philosophical masterpiece, the Guide for the Perplexed, was completed.

Maimonides died on December 13, 1204 (Tebeth 20, 4965 in the Hebrew calendar), and was buried in Tiberias. Legend relates that Maimonides' body was placed upon a donkey and the animal set loose. The donkey wandered and wandered and finally stopped in Tiberias. That is the site where the great Maimonides (Rambam) was buried.

Maimonides was a prolific writer. We have already mentioned his famous trilogy, the Commentary on the Mishnah, the Mishneh Torah and the Guide for the Perplexed. Each of these works alone would have indelibly recorded Maimonides' name for posterity. However, in addition to these, he also wrote a Book on Logic (Ma'amar Hahigayon), a Book of Commandments (Sefer Hamitzvoh), an Epistle to Yemen (Iggereth Hashmad), a Treatise on Resurrection (Ma'amar Techiyath Hamethim), commentaries on several tractates of the Talmud, and over 600 Responsa. Several additional works including the so-called Prayer of Maimonides (1) are attributed to him but are, in fact, spurious, the prayer having been written in 1783 (1-2).

Over and above all the books we have just enumerated, Maimonides also wrote ten medical works (3). The following is a brief examination and analysis of these medical writings. The first is called Extracts from Galen. Galen's medical writings consist of over 100 books and required two volumes just to catalogue and index them all. Maimonides, therefore, extracted what he considered the most important of Galen's pronouncements and compiled them verbatim in a small work which was intended primarily for the use of students of Greek medicine. This work, as all of Maimonides' medical books, was originally written in Arabic. No complete Arabic manuscript exists today but several Hebrew manuscript translations are available. This work has never been published in any language, but brief excerpts therefrom in both English and Hebrew appeared recently in a Hebrew periodical (4). A work on the Extracts is being prepared by J. A. Leibowitz & E. Liebes.

The second of Maimonides' medical writings is the Commentary on the Aphorisms of Hippocrates. The famous aphorisms of Hippocrates were translated from the Greek into Arabic by Hunain Ibn Ishak in the ninth century. Maimonides wrote his commentary on this translation. Two incomplete Arabic manuscripts exist. A good medieval translation into Hebrew was made by Moses ben Samuel Ibn Tibbon. In this work, Maimonides occasionally criticizes both Hippocrates and Galen where either of these Greeks differ from his own views. For example, in chapter five, Hippocrates is quoted as having said, "a boy is born from the right ovary, a girl from the left", to which Maimonides remarks "A man should be either prophet or genius to know this". The introduction to this work was edited in the original Arabic with two Hebrew and one German translations by Steinschneider in 1894 (5). The entire work was published by Hasida

in 1935 (6) and again in a definitive edition by Muntner in 1961 (7). Recently, Bar Sela and Hoff have published Maimonides' interpretation of the first aphorism of Hippocrates (8). This is the famous aphorism which has been called the motto or credo of the art of medicine: "Life is short, and the art long, the occasion fleeting, experience fallacious and judgement difficult. The physician must not only be prepared to do what is right himself, but must also make the patient, the attendant and the externals cooperate."

The third of Maimonides' medical works is the Medical Aphorisms of Moses (Pirke Moshe) and is the most voluminous of all. This book is comprised of 1500 aphorisms based mainly on Greek medical writers. There are 25 chapters each dealing with a different area of medicine including anatomy, physiology, pathology, symptomatology and diagnosis, etiology of disease and therapeutics, fevers, blood-letting or phlebotomy, laxatives and emetics, surgery, gynecology, hygiene, exercise, bathing, diet, drugs and medical curiosities. A complete Arabic original manuscript exists in the Gotha library in East Germany. A Hebrew translation was made in the thirteenth century and published in Lemberg, Poland in 1834 and again in Vilna in 1888 (9). The definitive Hebrew edition is that of Muntner dated 1959 (10). Maimonides' Aphorisms (11) were also translated into Latin in the thirteenth century and appeared as an incunabulum in Bologna in 1489 and again in Venice in 1497, followed by several printed Latin editions (12). Only small fragments of this work have ever appeared in a Western language (13-16). A complete English version by Rosner and Muntner was recently published in two volumes (17-18) and reprinted (19).

A few excerpts from this most important work will give the reader the flavor of Maimonidean medical thinking. Maimonides speaks of

cerebrovascular disease: "one can prognosticate regarding a stroke, called apoplexy. If the attack is severe, then he will certainly die but if it is minor, then cure is possible, though difficult....the worst situation that can occur following a stroke is the complete irreversible suppression of respiration..."

Maimonides seems to be describing diabetes when he states: "Individuals in whom sweet white (humor) occurs are very somnolent (?hyperglycemia). To those who have an excess of sour white (humor), hunger occurs, then they will become extremely thirsty. When this white liquid will be neutralized, then the thirst will disappear." Maimonides explains that diabetes mellitus was seldom seen in "cold" Europe whereas it was frequently encountered in "warm" Africa. He also reports this disease to be associated with the imbibition of suave water of the Nile. (Maimonides lived in Fostat or old Cairo.) There follows the English translation of this most important aphorism No. 69 from the eighth chapter: "Moses says: I, too, have not seen it in the West (Spain, where Maimonides was born and/or Morocco where he fled from the persecution of the Almohades) nor did any one of my teachers under whom I studied mention that they had seen it (diabetes). However, here in Egypt, in the course of approximately ten years, I have seen more than twenty people who suffered from this illness. This brings one to the conclusion that this illness occurs mostly in warm countries. Perhaps the waters of the Nile, because of their suaveness, may play a role in this."

A very accurate description of obstructive emphysema is provided during a lengthy discussion of respiratory disease "...reason (for respiratory embarrassment) is narrowing of the organs of respiration, then the breast will be seen to greatly expand. This expansion will produce rapid and cut off (respirations) ..."

Clubbing of the fingers associated with pulmonary disease, already described by Hippocrates, is beautifully depicted: "With an illness affecting the lungs called 'hasal', namely phthisis, there develops rounding of the nail as a rainbow." The signs and symptoms of pneumonia are remarkably accurately described: "The basic symptoms which occur in pneumonia and which are never lacking are as follows: acute fever, sticking (pleuritic) pain in the side, short rapid breaths, serrated pulse and cough, mostly (associated) with sputum..." Hepatitis is just as beautifully described: "The signs of liver inflammation are eight in number as follows: high fever, thirst, complete anorexia, a tongue which is initially red and then turns black, biliary vomitus, initially yellow egg yolk in color which later turns dark green, pain on the right side which ascends up to the clavicle...Occasionally a mild cough may occur and a sensation of heaviness which is first felt on the right side and then spreads widely..."

So much for the Medical Aphorisms of Moses.

The fourth of Maimonides' medical writings is his Treatise on Hemorrhoids. This work was written for a nobleman, as Maimonides describes in the introduction, probably a member of the Sultan's family. There are seven chapters dealing with normal digestion, foods harmful to patients with hemorrhoids, beneficial foods, general and local therapeutic measures such as sitz baths, oils and fumigations. Maimonides disapproves of blood-letting or surgery for hemorrhoids except in very severe cases. Maimonides' whole approach to the problem seems to bespeak a modern medical trend. The Treatise on Hemorrhoids was first published by Kroner in 1911 in Arabic, Hebrew and German (20). A good general description of the work in English appeared in 1927 by Bragman (21). The definitive Hebrew edition is that of Muntner dated 1965 (22), and an English translation of the entire work was published by Rosner and Muntner (23).

In the introduction to this work, Maimonides describes the reason for writing it:

"There was a youth, (descended) from knowledgeable, intelligent and comprehending forebears, from a prominent and renowned family, distinguished and charitable and of great means, in whom the affliction of hemorrhoids occurred at the mouth of the rectum, that interested me in his problem and placed the task (of healing them) upon me. These irritated him on some occasions and he treated them in the customary therapeutic manner until the pain subsided and the prolapsed rectum (literally: excesses that protruded) became reduced and returned to the interior of the body so that his (bodily) functions returned to normal. Because this (illness) recurred many times, he considered having them extirpated in order to uproot this malady from its source so that it not return again. I informed him of the danger inherent in this, in that it is not clear if these hemorrhoids (literally: additions) are of the variety which should be excised or not, since there are people in whom they have once been (surgically) extirpated and in whom other hemorrhoids develop. This is because the causes which gave rise to the original ones remained and, therefore, new ones develop."

Here Maimonides provides an insight into the etiology of disease in general in that he regards operative excision of hemorrhoids with skepticism, because surgery does not remove the underlying causes which produced the hemorrhoids in the first place.

The fifth work is Maimonides' Treatise on Sexual Intercourse written for the nephew of Saladin, the Sultan al Muzaffar Umar Ibn Nur Ad-Din.

The Sultan indulged heavily in sexual activities and asked Maimonides, his physician, to aid him in increasing his sexual potential. The work consists mainly of recipes of foods and drugs which are either aphrodisiac or antiaphrodisiac in their actions. Maimonides advised moderation in sexual intercourse and describes the physiology of sexual temperaments. There are two versions to this book, a short authentic and a longer spurious version. Both were first edited and published by Kroner in 1906 in Hebrew and German (24). Ten years later, Kroner published the true short version from the original Arabic manuscript in Granada (25). An Italian edition appeared in 1906 (26), and English (27) and Spanish (28) translations were published in 1961. The definitive Hebrew edition of both authentic (29) and spurious (30) versions of Maimonides' book on sex is that of Muntner dated 1965. A new English translation of the true work by Rosner has recently been published (31).

The sixth medical book of Moses Maimonides is his Discourse on Asthma. The patient for whom this book is written suffers from violent headaches which prevent him from wearing a turban. The patient's symptoms begin with a common cold, especially in the rainy season, forcing him to gasp for air until phlegm is expelled. The patient asks whether a change of climate might be beneficial. Maimonides, in 13 chapters, explains the rules of diet and climate in general and those rules specifically suited for asthmatics. He outlines the recipes of food and drugs and describes the various climates of the middle east. He states that the dry Egyptian climate is efficacious for sufferers from this disease and warns against the use of very powerful remedies. Several Arabic, Hebrew and Latin manuscripts exist (32). The first critical edition of this work appeared in Hebrew in 1940, edited by Muntner (33). Additional manuscripts became available after World War II

and a corrected, improved and revised, second Hebrew edition appeared in 1963 (34). Only 300 copies of this edition were printed and thus a third edition was published by Muntner in 1965 (35). An English version of Maimonides' book on asthma was published in 1963 (36) and a French translation in 1965 (37).

The last chapter of this work deals with concise admonitions and aphorisms which Maimonides considered "useful to any man desirous of preserving his health and administering to the sick". The chapter begins as follows: "The first thing to consider...is the provision of fresh air, clean water and a healthy diet." Fresh air is described in some detail: "...City air is stagnant, turbid and thick, the natural result of its big buildings, narrow streets, the refuse of its inhabitants...one should at least choose for a residence a wide-open site...living quarters are best located on an upper floor...and ample sunshine... Toilets should be located as far as possible from living rooms. The air should be kept dry at all times by sweet scents, fumigation and drying agents. The concern for clean air is the foremost rule in preserving the health of one's body and soul." Let our air pollution control programmers take cognizance of Maimonides' prophetic statements nearly 800 years ago.

The seventh medical work of Maimonides is his Treatise on Poisons and Their Antidotes. This book is one of the most interesting and popular works because it is very scientific and modern in its approach. It was used as a textbook of toxicology throughout the middle ages. The book was written at the request of Maimonides' noble protector, the Grand Visier and Supreme Judge Al Fadhil, who in 1199, asked Maimonides to write a treatise on poisons for the layman by which to be guided before the arrival of a physician. In the introduction, Maimonides praises

Al Fadhil and his feats in war and peace. He mentions Al Fadhil's orders to import from distant lands ingredients lacking in Egypt but necessary for the preparation of two antidotes against poisonings, the Great Theriac and the Electuary of Mithridates.

The first section of the book deals with snake bites, dog bites, scorpion, bee, wasp and spider stings. The first chapter concerns the conduct of the victim in general. Thus Maimonides states as follows:

"When someone is bitten, immediate care should be taken to tie the spot above the wound as fast as possible to prevent the poison from spreading throughout the body; in the meantime, another person should make cuts with a black lancet directly above the wound, suck vigorously with his mouth and spit out. Before doing that, it is advisable to disinfect the mouth with olive oil, or with spirit in oil...Care should be taken that the sucking person has no wound in his mouth, or rotten teeth...should there be no man available to do the sucking, cupping-glasses should be applied, with or without fire; the heated ones have a much better effect because they combine the advantages of sucking and cauterizing at the same time...Then apply the great theriac...Apply to the wound some medicine which should draw the poison out of the body."

In his book on poisons, Maimonides also describes the long incubation period for rabies (up to 40 days). Numerous Arabic, Hebrew and Latin manuscripts are extant (38). A German translation was published in 1873 by Steinschneider (39). A French translation appeared in 1865 by Rabinowicz and was reprinted in 1935 (40). An English translation of Steinschneider's German version is that of Bragman in 1924 (42) and Muntner's English version was published in 1966 (43).

The eighth book is the Regimen of Health (Regimen Sanitatis).

Maimonides wrote it in 1198 during the first year of the reign of Sultan Al Malik Al Afdal, eldest son of Saladin the Great. The Sultan was a frivolous and pleasure-seeking man of 30, subject to fits of melancholy or depression due to his excessive indulgences in wine and women, and his warlike adventures against his own relatives and in the Crusades. He complained to his physician of constipation, dejection, bad thoughts and indigestion. Maimonides answered his royal patient in four chapters. The first chapter is a brief abstract on diet taken mostly from Hippocrates and Galen. The second chapter deals with advice on hygiene, diet and drugs in the absence of a physician. The third extremely important chapter contains Maimonides' concept of "a healthy mind in a healthy body", perhaps the first description of psychosomatic medicine. He indicates that the physical well being of a person is dependent on his mental well being and vice versa. The final chapter summarizes his prescriptions relating to climate, domicile, occupation, bathing, sex, wine drinking, diet and respiratory infections.

The whole treatise on the Regimen of Health is short and concise but to the point. This is the reason for its great success and popularity throughout the years. It is extant in numerous manuscripts. A Hebrew translation from the original Arabic was made by Moses ben Samuel Ibn Tibbon in 1244 and this version was reprinted several times in the nineteenth century (Prague 1838, Jerusalem 1885, Warsaw 1886). Two Latin translations were made in the thirteenth century. Several 15th Century incunabulae and 16th Century editions of these Latin versions exist. A French translation by Carcouisse appeared in 1887 in Algiers (44). The Arabic text with German and Hebrew translations was published by Kroner in 1925 (45), although he

had already published the all-important chapter 3 dealing with psychosomatic medicine 11 years earlier in 1914 (46). An English translation of chapter 3 by Bragman appeared in 1932 (47). The definitive Hebrew edition is that of Muntner dated 1957 (48). Two English translations of the entire work were published: in 1958 by Gordon (49) and 1964 by Bar Sela, Hoff and Faris (50). Another German translation by Muntner appeared in 1966 (51). These numerous editions in many languages attest to the importance and popularity of Maimonides' Regimen of Health.

The ninth medical writing of Maimonides is the Discourse on the Explanation of Fits. This work has been called Maimonides' swan song as it probably is the last of his medical works, having been written in the year 1200, four years before his death. It was also written for the Sultan Al Malik Al Afdal and is sometimes considered to represent chapter five of the Regimen of Health. The Sultan persisted in his over-indulgences and wrote to Maimonides, who was himself ill, asking advice about his health. Maimonides confirms most of the prescriptions of the Sultan's other physicians regarding wine, laxatives, bathing, exercise and the like, and near the end, gives a very detailed hour by hour regimen for the daily life of the Sultan. The original Arabic was edited and published with Hebrew and German translations by Kroner in 1928 (52). English editions by Bar Sela, Hoff and Faris

in 1964 (50) and Rosner and Muntner in 1969 (23), another German version by Muntner in 1966 (51), and another Hebrew edition by Muntner in 1969 (53) are available. The most recent edition is that by Leibowitz & Marcus entitled "On the Causes of Symptoms" (54), in which the text is presented in four languages (Arabic, Hebrew, Latin and English) and is accompanied by a running commentary, explanatory essays and a comprehensive catalogue of drugs.

The final authentic medical book of Maimonides is the Glossary of Drug Names. This work was discovered quite recently by Max Meyerhof, an ophthalmologist in Egypt, in the Aya Sofia library in Istanbul, Turkey as Arabic manuscript No. 3711. Dr. Meyerhof edited the original Arabic and provided a French translation with a detailed commentary which he published in 1940 in Cairo (55). A Hebrew edition by Muntner appeared in 1969 (53). The work is essentially a pharmacopoeia and consists of 405 short paragraphs containing names of drugs in Arabic, Greek, Syrian, Persian, Berber and Spanish. This is the book which is translated here into English from the French edition of Max Meyerhof.

In summary, Maimonides' medical writings are varied, comprising extracts from Greek medicine, a series of monographs on health in general and several diseases in particular, and a recently discovered pharmacopoeia demonstrating Maimonides' extensive knowledge of Arabic medical literature and his familiarity with several languages. Some people feel that Maimonides' medical writings are not as original as his theological and philosophical writings. However, his medical works demonstrate the same lucidity, conciseness and formidable powers of systematization and organization so characteristic of all his writings. The Book on Poisons, the Regimen of Health, and the Medical Aphorisms of Maimonides became classics in their fields in medieval times.

I would like to conclude by citing a paragraph from my first paper on Maimonides (56):

"Maimonides died on December 13, 1204 (Tebet 20, 4965, in the Jewish calendar) and was buried in Tiberias, Palestine, at his own request. The Christian, Moslem and Jewish worlds mourned him. His literary ability was incredible and his knowledge encyclopedic.

He mastered nearly everything known in the fields of theology, mathematics, law, philosophy, astronomy, ethics, and, of course, medicine. As a physician, he treated disease by the scientific method, not by guesswork, superstition, or rule of thumb. His attitude towards the practice of medicine came from his deep religious background, which made the preservation of health and life a divine commandment. His inspiration lives on through the years and his position as one of the medical giants of history is indelibly recorded. He was physician to sultans and princes, and as Sir William Osler said, "He was Prince of Physicians". The heritage of his great medical writings is being more and more appreciated. To the Jewish people he symbolized the highest spiritual and intellectual achievement of man on this earth; as so aptly stated, From Moses to Moses there never arose a man like Moses, and none has since." (57)

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2. TRANSLATOR'S INTRODUCTION

According to Meyerhof, the Glossary of Drug Names by Maimonides was known only to Ibn. Abi Usaybi'a and is mentioned by him in his Sources of Information on the Classes of Physicians. Meyerhof believed it to be an apocryphal book up to the time when in 1932 he was informed by Dr. Helmut Ritter, in Istanbul, that this book exists in Arabic manuscript No. 3711 in the Aya Sofia Library. In this book Maimonides reveals an unknown side of his vast learning, namely, that of a philologist and linguist. The manuscript itself is very remarkable because it was written by the famous Arab pharmacologist and botanist, Diya' ad-Din 'Abdallah, better known as Ibn al-Baytar, the author of the greatest Arabic treatise on the simples. That the copy of Maimonides' treatise on drug names was made by Ibn-Baytar himself is certified on the cover of the Istanbul manuscript by his pupil, Ibn as-Suwaydi, a distinguished physician of the thirteenth century, and by Khalil ibn Aybak as-Safadi, a well-known scholar and historian of the fourteenth century, who were both among the owners of this precious and unique manuscript. It is impossible to decide at exactly which period of his medical career Maimonides would have been likely to compose such a treatise. According to Meyerhof, it appears certain that he wrote it in Cairo, because he frequently refers to names of plants and drugs which were, and still are in use in Egypt. He probably composed it for the use of his Muslim friends and pupils in Egypt and Palestine. Meyerhof, moreover, supposes that Ibn al-Baytar copied the treatise soon after his arrival in Egypt and not from the author's copy, because he not only made many mistakes in copying, but also left uncorrected many mistakes of previous copyists.

The Arabic text begins with the following words: "My aim in this epitome is the explanation of the names of simple drugs which exist in our times and which are known to us and which are used in the art of medicine, and which we encounter in the medical books." Maimonides adds that he will omit the remedies that have only one well-known name and those that are too rare; he will also try to avoid repetitions and all circumstantial descriptions, in order to shorten the glossary as much as possible. He quotes as his forerunners in this work only Spanish physicians: Ibn Gulgul, Ibn Ganah, Ibn Wafid, Ibn Samagun, and Ahmad al-Ghafiqi. He then says that he intends to add popular names from "the Westland" (Morocco). There follow 405 short paragraphs containing, in alphabetical order, about 2000 names of drugs, mostly of vegetable and more rarely of mineral or animal nature. Maimonides generally gives first an Arabic name, which, however, is very often of Greek, Syriac, or Persian origin; after that, several other Arabic and Syriac names, and then names in Greek, Persian, Berber, and Spanish. These latter names, as usual among the Spanish Arabs, are given under the title of "names in the foreign language of Andalusia". They are often mutilated by the copyists, but Meyerhof was able to restore most of them with the help of Simonet's invaluable glossary. For the restoration of mutilated Berber names, the later published glossary of Moroccan Materia Medica, by Renaud and Colin, proved very useful. Meyerhof claims that it is strange that Maimonides did not mention a single Hebrew name of a plant or drug, although such names occur rather frequently in his theological writings and have carefully been collected by Löw in his great Flora of the Jews. Further, states Meyerhof, this is even more remarkable since Maimonides' older Muslim contemporary, the famous geographer, Al-Idrisi, in his hitherto unpublished "Book on Simples" (MS, Fatih Library, No. 3610, Istanbul) cites many Hebrew drug names, which he probably

copied from the works of Jewish scholars in Sicily. The absence of Hebrew names according to Meyerhof, very likely, proves that Maimonides composed his book mainly for the use of non-Jewish friends and pupils.

Close examination of the text again reveals Maimonides' vast knowledge of Arab medical literature, from which he took the approximately 2000 names that occur in this small but very important abstract. He utilized the drug books of his predecessors in Spain and Morocco, but very often supplemented their knowledge by information which he had obtained from the common people in Morocco. He must also have inspected the stocks of drugs kept by medical men there, as he often quotes what he had seen of root and dried flowers in their stores. He continually repeats "in our land, al-Maghrib", thus showing that he felt at home in the West, the land of his study during his youth, although he sometimes adds: "In Egypt or Syria, they call this plant".

3. PREVIOUS EDITIONS

There are only two published versions of Maimonides' Glossary of Drug Names. One is that of Max Meyerhof which appeared in Cairo in 1940 under the title Sarh Asma' Al Uggar, in the original Arabic and accompanied by a translation and commentary in French. Meyerhof's original intention was to publish the work in 1935, year of the eighth centenary of Maimonides' birth. However, textual difficulties were such that Meyerhof was forced to consult numerous works in foreign libraries. He was further interrupted by his professional obligations as a physician. It thus took him six years to complete his Arabic and French edition. During the intervening years, Meyerhof published several brief articles concerning this work. (Meyerhof, M. Sur un Ouvrage Inconnu de Maimonide, Mélanges Maspero, Vol. 3, Cairo, 1935; Meyerhof, M. Sur un Glossaire de Matière Médicale Composé par Maimonide. Bull. Inst. d'Egypte, Vol. 17, pp 223-235, Cairo, 1935).

The only other version of Maimonides' Glossary of Drug Names is the Hebrew edition of Suessman Muntner published in 1959 by Mossad Harav Kook in Jerusalem under the title Beyur Shaymoth Harefuoth. Muntner had previously commented upon Meyerhof's work in an article in Harefuah (Vol. 20 #9-10, p. 77). The present English translation is based entirely on Meyerhof's edition.

4. THE UNIQUE MANUSCRIPT (Meyerhof, loc. cit, pp LVII-LXI, abridged)

The only known codex containing Maimonides' Glossary of Drug Names is manuscript #3711 of the Aya Sofia Library in Istanbul, Turkey. Its dimensions are 25 by 17 centimeters. The manuscript itself occupies pages 64b to 102a of the codex. In the margin of the first page (64b) is an Arabic note indicating that the manuscript belonged to the library of the Ottoman Sultan, Mahmūd (perhaps Mahmūd the first, who reigned from 1730 to 1754).

The manuscript was written in its entirety by Ibn al-Baytar and comprises 38 folios with 17 lines on each page. The writing is Maghribian, very legible, nearly calligraphed, and richly punctuated and vocalized. The first essay is entitled Missive of Hunain Ibn Ishaq the Physician, on Weights & Measures. It comprises pages 64a to 68a. It is followed by The Book of Qusta ibn Luqā of Ba'labakk on Weights & Measures. This essay is much longer than the previous one and comprises pages 68a to 74b of the manuscript. Pages 71a and b, in the margins have several corrections in a handwriting different from that of Ibn al Baytar who himself made not a single correction in the entire manuscript.

Then follows the Kitab Sarh al- 'Uqqār ta'lif as-Saih ar-Ra'is Abu 'Imran Mūsā ibn 'Abdallāh al-Isrā'ili al-Magribi (The Book on the Explanation of Medicinal Drugs, composed by the master and leader Abū 'Imran Mūsā, son of 'Abdallāh, the Israelite, the Maghribian). This treatise occupies twenty-seven and one-half folios, from pages 74b to 102a. After a two-and-a-half page introduction, there follow, in the order of the semitic alphabet, short articles or paragraphs arranged in chapters, that form the content of the Glossary of Drugs. Meyerhof, and after him Muntner, in their French and Hebrew editions respectively, numbered the 405 articles which contain approximately 1800 drug names.

In the original Arabic manuscript, the articles or paragraphs follow each other without punctuation. However, the titles are written in red ink with letters slightly larger than those of the text. The addition of diacritical points and of vocalization is considerable, contributing greatly to the identification of many drug names. It is remarkable that the author, Maimonides (or perhaps the copyist Ibn al-Baytar) mostly uses the vulgar forms of the name in usage in Maghrib or in Egypt, in placing vowels differently from the classic vocalization, and at an end of many names, instead of the nunnation there is a sukun. The signs of tasdid and damma, placed by Ibn al-Baytar, resemble each other and are easily confused. Sometimes he placed negligible vocalizing signs such that one can err, as in the first name utrugg. On the other hand, the sixth name ustuhudus is perfectly vocalized.

One might suppose that a manuscript copied shortly after the death of the author, Maimonides, by a specialist of universal reputation such as Ibn al-Baytar, would be a perfect copy. But quite the contrary is in fact the case. The number of words which lack diacritical points and vocalization, where the copyist only gives the sometimes doubtful writing of the name, is large. One must also add a considerable number of instances where Ibn al-Baytar overlooked rather obvious errors, or where he himself committed absurdities. For example, in article #123, instead of haramat al-baqar ("pearl of cattle"), which was the well-known name of concretions of biliary calculi in medieval Egypt, Ibn al-Baytar wrote gazarat al-baqar ("carrot of cattle") which makes no sense at all. He never tried to correct obvious errors in the text of Maimonides and even less so the numerous errors of the copyist which crept into the text. On Folio 38a, he forgot to insert in red ink the titles of eight articles and that of chapter Ha. The same

is true of article 304 where the title fawaniya is omitted by the copyist Ibn al-Baytar.

Even worse, on Folio 92a, he forgot to write the title of article #252 nailufar, and attached this article to the previous one. He then placed the names nailufar and nisrin as titles of the following articles, thus causing a great confusion, and he also omitted the title of the article which should have followed, i.e. nargis, and attached it to the previous article. Ibn al-Baytar did not even mention the confusion of articles 251 to 252 which he produced, and did nothing to rectify it. In addition, at the bottom of folio 96a, he gave to article 315 the title fil instead of filzahra, and to article 316 which explains the previous name, he gave the defective title fahzahrag. Furthermore, the number of names either altered or completely mutilated is great.

All the above is noted by Max Meyerhof in the introduction to his Arabic edition and French translation. Meyerhof was thus forced to spend many months in reestablishing the original form, and not always was he successful. He was immensely aided by Renaud and Colin from Rabat, particularly for certain Berber and old Castilian names.

Meyerhof suggests that the incorrectness of the text might be due to the fact that Ibn al-Baytar either copied the manuscript in great haste, or during the period when he was young and inexperienced such as shortly after his arrival in Egypt in 1220, approximately 20 years after the death of the author, Moses Maimonides.

5. CONTENT OF THE GLOSSARY OF DRUG NAMES
(Meyerhof, loc. cit. pp LXII-LXVII, abridged)

The Book on the Explanation of Drug Names is an alphabetical glossary of synonyms of medicinal drugs, as Maimonides, the author, himself expounds in his brief introduction. He defines his goal in declaring that he did not intend to describe simple remedies nor to discuss their use - but to explain some but not all of their names, that is to describe their synonyms. For this reason, he excluded from his list well-known drugs and, of course, those with only one name. As examples of the latter one might mention camphor (kafur), ambergris ('anbar), musk (misk), violet (banafsag), fig (tin) and cantharides (dararih) which are often described among the simple remedies in Maimonides' medical and theological works, but which are lacking in his glossary of synonyms of drugs.

The book represents a type of work that was in vogue particularly in Maghrib, the west of the Musulman world. In fact, Maimonides himself mentions five extant works by Spanish authors from which he was inspired: four are Musulman and one Jewish. The latter is the Tahis of the celebrated Abu' l-Walid (Yonah) ibn Ganah. The four others are the Book of Simple Drugs of Ibn Wafid, the Explanation of Drugs by Ibn Gulful, the Collection of Simple Drugs by Ibn Gulgul, the Collection of Simple Drugs of Ahmad al-Gafiqi and the Book of Simple Drugs of Ibn Samagun. It is surprising that Maimonides did not know the important treatise of drugs by his coreligionist Ibn Biklaris.

In general, Maimonides' work shows occidental inspiration. This is graphically illustrated in the concluding words of his introduction: "I have added thereto all that is reputed among the inhabitants of Maghrib.... I give preference to the interpretation which seems to me the one most

accepted by us in Maghrib". This phrase "by us in Maghrib" is repeated again and again throughout the glossary. Maimonides frequently adds "the inhabitants of Egypt call it...". It is, therefore, certain that he wrote his glossary in Egypt, as all his other medical writings.

By contrast, Maimonides' scientific thinking, has its origin in the west, in Spain and in Morocco, where he spent his years of study. Maimonides is known for his philosophic, theologic and other medical works. A book of medical lexicography such as the Glossary of Drug Names reveals a totally unknown or ignored aspect of the scientific activity and ability of Maimonides. Many works of this type appeared after Maimonides in both the Eastern and Western Musulman worlds. As in these other works of drug synonyms, the 405 articles of Maimonides' Glossary of Drug Names are of unequal length, sometimes comprising only a few words; other times articles occupy up to 15 lines or nearly an entire manuscript page. Maimonides, in general, gives the best known name of a drug as the title for an article and then follows it with synonyms in Arabic, ancient Greek, Syriac, Persian, Berber and Spanish. The latter language is designated by the words fi'agamiyyat al-Andalus ("in the foreign tongue of Andalusia"). It is the Andalusian dialect of old Castillian derived directly from the Latin. Works of medical writers of Musulman Spain have greatly contributed to the knowledge of this language of which only rare documents exist (see R. Dozy and W. H. Engelmann Glossary of Spanish and Portuguese Words Derived from the Arabic 2nd edit. Leyden and Paris 1969).

As he states in his preface, Maimonides also added many terms in popular usage ('anima), particularly in Maghrib but also in Egypt. As a consequence of this, he often vocalizes these terms according to the popular pronunciation, deviating from the classic vocalization of the great Arabic dictionaries.

His manner of vocalizing the popular Egyptian dialect corresponds to the pronunciation heard to this day in the bazaars of Cairo. For the Moroccan dialect, one observes much analogy with the modern terms as refined by Renaud and Colin in their edition of Tuhfa. Such terms are derived sometimes from the Greek or Latin and othertimes from Spanish.

In some articles, Maimonides furnishes useful explanations of different drugs that have the same name, or of different species of the same drug. His remarks are in part novel and unedited and complete the dictionaries of technical terms in use by the Arabs. The names of drugs in Arabic writings are, in general, given in Arabic and in Greek, Syriac and Arabicised Persian. Spanish-Arabic authors also add the names in Berber and ancient Castillian. Maimonides copied the latter names from his predecessors, and quite accurately. The alterations of names are attributable to the copyists. For Arabic, his native tongue, and for Syriac (neo-Aramaic), a language closely resembling Hebrew, he had no difficulty at all, and his transcriptions are, for the most part, correct.

By contrast, Greek and Persian were not familiar to Maimonides, and he occasionally confused the two languages, or wrote their Arabic forms incorrectly. Thus he wrote nabtafilun instead of bantafilun (pentaphyllon) and inserted this paragraph in Chapter nun. In this error, he follows several Arabic authors who made the same mistake because of their lack of knowledge of the Greek language. (For example, Ibn Sina, Canon I, 378).

One is struck by the fact that Maimonides, in his Glossary, did not mention a single name in Hebrew. This is even more astonishing in view of the fact that Maimonides was perfectly familiar with the names of simple remedies in the Hebrew language. Immanuel Löw, in his fundamental work Die Flora der Juden (Vienna, 1934, vol. IV, p. 75), discussing the subject of simple vegetables, notes that the Bible contains 117 names of plants, whereas the Mishnah

contains 320. Löw also found many of these names in the Mishneh Torah, Maimonides' monumental codification of all Biblical and Talmudic law and the only work of Maimonides written in Hebrew. Many of these names are also explained in Maimonides' own Luminary (As-Sirag) or Arabic commentary on the Mishnah. Maimonides thus knew perfectly well the names of plants and drugs in Hebrew. In spite of this, he failed to use a single synonym in Hebrew, probably because he wrote his Glossary primarily for the use of his non-Jewish pupils. His other medical writings also do not contain Hebrew terms, probably for the same reason.

It seems certain, according to Meyerhof, that even to Jewish physicians of Maghrib and Egypt, Arabic medical terms were better known as the Hebrew names. The physician-druggist Kohen al-'Attar, who lived a half century after Maimonides, introduced some rare Hebrew names in his synonyms of drugs. By contrast, the great Musulman scholar al-Idrisi who died in 1166, in his famous Collection of Drugs, included everywhere among the numerous synonyms he mentions, Hebrew names transcribed in Arabic characters. He did this because of his relations with Jewish physicians with whom he came in contact at the court of the Kings of Palermo. There thus exists the curious fact that Hebrew synonyms of drugs are lacking in the work of the greatest Jewish Sage, yet they are found in part in the work of one of the greatest Musulman scholars of the same century. As to the Arabic synonyms, Maimonides, in his Glossary, gives the same names that one finds in his other medical writings.

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**TRANSLATION INTO ENGLISH OF MAX MEYERHOF'S RENDERING
OF THE TEXT TOGETHER WITH HIS COMMENTARIES**

(pp 3-204 of the 1940 Meyerhof edition)

