History and Development of Herbal Medicine (2)
Europe & South America

1) In the 4th-century BC, Aristotle (Greek philosopher), thought that plants had a "psyche" less ordered than the human soul.
2) By about 500 BC in **developed cultures**, medicine began to separate from the magical and spiritual world. **Hippocrates** (460-377 BC), the Greek "father of medicine," considered illness to be a natural rather than a supernatural phenomenon, and he felt that medicine should be given without ritual ceremonies or magic.
Hippocrates (460-377 BC)
3) At 1st-century AD Greek physician named **Dioscorides** wrote the first European herbal, *De Materia Medica*. He produced an accurate work on herbal medicines. This book was the first herbal book that contains pictures of the plants. It influences the Western medicine, and become **the principal reference used in Europe until the 17th century.**
4) **Galen** (AD 131-200), physician to the Roman emperor, had an equally deep influence on the development of herbal medicine. Based on **Hippocrates and Aristotle theories** (who had been influenced by Egyptian and Indian ideas)
Galen expanded the "theory of the four humors": That holds that four fluids within the body; black bile, phlegm, yellow bile and blood correspond to the four elements (fire, air, earth and water), herbs are classified as having hot, dry, cold and moist properties, the four seasons and other aspects of the natural world.
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http://www.richeast.org
- Until the 17th century, physician believed that an imbalance of the humeral system caused mental and physical illness. The aim of the healer is to restore balance, often with the aid of herbal remedies.
Trade between continents
5) In the 2nd century BC trade between Europe, the Middle East, India, and Asia was already well established, making trade routes available for many medicinal and culinary herbs.
-e.g. **Cloves** (اﻟﻘﺮﻧﻔﻞ) (*Eugenia caryophyllata*) native to the Philippines were imported into China then Egypt around AD 176. By the 8th century AD, their strong aromatic flavor and powerfully antiseptic and analgesic properties were familiar throughout most of Europe.

Also **ginger** (الزنجبيل) (*Zingiber officinale*), **cardamom** (الهال) (*Eletteria cardamomum*), **nutmeg** (جوزة الطيب) (*Myristica fragrans*) were available in Europe. Beside **garlic** (الثوم) (*Allium sativum*) which originating in central Asia and was introduced into Britain in the 1st century AD.
Herbs including Ginger (Zingiber officinale) and Cardamom (Elettaria cardamomum).

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(جوزة الطيب) *Nutmeg* (Myristica fragrans).
B- The arrival of Columbus's ships in the Caribbean in 1492 and the rapid conquest and colonization of Central and South America by the Spanish and Portuguese, bring to Europe a new and previously unheard medicinal plants as Potatoes (*Solanum tuberosum*) and corn (*Zea mays*), both native to South America, and become common foods. *Potato juice is a valuable remedy for the treatment of arthritis* (التهاب المفاصل), while *cornsilk makes an effective decoction for urinary problems such as cystitis* (التهاب المثانة).
-Many of these herbs from the Americas had highly potent medicinal actions, and they became available in the apothecaries العطارين of the major European cities.
For most rural communities, however, the only foreign plants that were used medicinally were those that could also be grown locally as foods.
As trade and interest in herbal medicines and spices increased, many writers attempted to catalog plants with a known medicinal action and record their properties systematically. They filtered back to Europe Classical Greek, Roman, Egyptian and Arabic texts.
Hospitals, medical schools, and universities were founded.

- e.g. the medical school at Salerno (Italy). This school allowed the students from all faiths to study and also for women to train to become physicians.
6) Also in **medieval Europe**, there was a theory called **Doctrine of Signatures** stated there was a connection between how a plant looked and how it might be used as a medicine. (plant's appearance indicated the ailments it would treat)

- e.g. the leaves of lungwort (نبيضة اللوف) (**Pulmonaria officinalis**) were thought to resemble lung tissue, and the plant is still used to treat ailments of the respiratory tract.
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7) **Health and hygiene 1400-1700**

Between the 12th and 18th centuries, large number of new medicinal plants added to an already large number of useful European herbs. Beside that the Europeans had the opportunity to observe the different medical practices of people in South America, China, Japan, and especially in India, where trade was well established.

This was **expected** to play a role in improvement of health in Europe. But the opposite case happened. People living in Europe during this period experienced some of the most unhealthy conditions the world has ever seen, which enable the spread of fatal diseases such as plague (الطاعون) and syphilis.
- European doctors had little success in combating diseases. The medicine they practiced was based on the blind acceptance of Galen's humoral principles. Physicians in Europe sometimes killed their patients with bloodletting and toxic minerals in attempts to balance the humors as they were to cure.
8) **Paracelsus** *(1493-1541)*

-Was one of the key European figures of the 16th century. He is known as the "father of chemistry", he rejected the repetition of Galen's theories in favor of detailed observation in medicine.
Paracelsus
He also:

A) has an **influential force in the future development of chemistry, conventional medicine, herbal medicine, and homeopathy.**
B) paid great attention to the exact dosage, saying that “it depends only on the dose whether a poison is a poison or not”. Since larger doses of the purgative (المسهل) known as calomel (mercurous chloride, Hg₂Cl₂) were given to those suffering from syphilis (السفس) and many other diseases.

Some patients dying and many more suffering from the long-term consequences of mercury poisoning.
C) revived interest in the Doctrine of Signature; the ancient theory that stated that plant's appearance indicated the ailments it would treat.
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Culpeper
9) Nicholas Culpeper (1616-1654) Wrote "The English Physician" In this book he developed a medical system that blended astrology and personal experience of the therapeutic uses of local plants, based on Dioscorids, Paracelsus and Arabian physicians.

• So, it is clear that in this new climate, herbal medicines were becoming increasingly ignored.
• Traditional medicine has generally lacked scientific explanation, but it has frequently been far ahead of medical science in the way it has been applied therapeutically.
10) The **medical understanding of bodily functions** started slowly beside, distinguishing different disease processes based on biochemical body functions.

- They succeeded in revealing how the body works on a biochemical level but, they less succeeded in developing effective medical treatments for the relief and cure of diseases.
11) Up until the end of the 16th century, nearly all medical traditions had been based on the concept of working with nature "vital force", with the body's healing capacities, which could be supported and strengthened with appropriate medicinal herbs.
The importance of the vital force was diminished in the West by the philosophy of Rene Descartes (French mathematician, 1596-1650) who divided the world into body and mind, nature and ideas.

- His philosophy stated that the vital force that maintains life and governs good health was a result of religion rather than of the newly "science" of medicine.
Rene Descartes
12) In 1785, Dr. William Withering, a conventionally trained doctor with a long interest in medicinal plants, published Account (تقرير) of the Foxglove (Digitalis purpurea) that was used in some regions of England for curing dropsy (الاستسقاء) (water retention), he carefully recorded case histories, and showing how foxglove's powerful (and potentially dangerous) active constituents, now known as cardiac glycosides (remain used to present), made it a valuable plant medicine in the treatment of dropsy.
Dr. William Withering
Foxglove

(*Digitalis purpurea*)

Isolating chemicals

13) From the **early 19th century onward**, the chemical laboratory began to replace Mother Nature as the source of medicines. In 1803 they isolated **narcotic alkaloids** (القلوانيات المخدرة) from opium poppy (الخشخاش المنوم) (*Papaver somniferum*). **Salicylic acid**, the chemical base of aspirin, was isolated from willow bark (لحاء) (الصفصاف الأبيض) (*Salix alba*) in 1838. From this point on, **herbal medicine and biomedicine were to take separate paths**.
Salix alba (willow)
al-ṣaffaf
But till that time, the influence of the universities, medical schools, and laboratories of Europe remained limited. And herbal medicine predominated as a form of treatment for most people around the world.