

Medicine and Miracles: Health, Illness and Cures

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Détail d'une enluminure du *Canon medicinae* d'[Avicenne](#) (Besançon - BM - ms. 0457 - f. 051).

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What will be studying in this section of the module?

Medieval medical concepts:

What were the origins of medieval medical ideas?

the four humours, importance of a balanced diet, bloodletting, uroscopy, the zodiac, surgery, herbal medicine, what did medieval medicine have in common with current medical belief?

The plague:

How did people respond to an epidemic in the Middle Ages?

Secular v religious responses; medieval poetry requesting cures

Saints and relics:

The saints as guardians of the people, saints associated with particular illnesses.

How can 'miracle' be defined? Holy bones, sacred objects and pilgrimage sites.

Holy wells:

Pre-Christian and pagan? How were wells believed to have been formed? What stories and folklore are associated with wells?

Medieval poetry and saints' Lives associated with holy wells

Later folk traditions, pilgrimage to holy wells, case studies, healing but also cursing wells.

The Physicians of Myddfai:

Who were the Physicians of Myddfai? Did they actually exist?

The Legend of the Lady of the Lake

Herbal medical recipes from Wales



How is this part of the module assessed?

Level 5 students:

1. Write a long encyclopaedia entry (2,000 words) on EITHER any holy well OR any saintly relic of your choice.

Level 6 students:

2. Write a short journal article (2,000 words) on EITHER any holy well OR any saintly relic of your choice.

Deadline: Friday 28 May 2021

Medieval Medicine

- Based largely on Greek and Roman texts < e.g. Hippocrates (460 BC-370 BC) born Kos Greece and Galen (129CE-200) also Greek (born in Pergamon now Turkey)
- – Hippocratic Oath today – ‘Do no harm’
- Galen hugely influential – infectious diseases, inflammation, muscles and spinal cord, but knowledge of anatomy based on dissection of animals.
- A formal body of theoretical knowledge, many medieval manuscripts and medical compendiums survive (in Wales some of these are associated with the Physicians of Myddfai)
- Many contain recipes using herbs and plants; monasteries copied, translated and produced medical texts;
- Monks and nuns translated works from Greek, Indian and Arabic traditions, e.g. one influential work = Avicenna’s *The Canon of Medicine* c. 1030 (summarized Greek, Indian and Arabic medical knowledge).
- Transmission of Islamic medical ideas following Crusades
- Foundation of medieval universities: Salerno C9th/C10th (but particularly renowned for medical training C13th), Paris (1150), Bologna (1158), Oxford (1167), Padua (1222)

Medieval Medical Concepts

What is meant by the Four Humours?



Image: Leech applicator tubes and bloodletting knife

Simon Speed, Public domain, via Wikimedia Commons

The Four Humours

- Idea that originated in Ancient Greece (some say it came from Ancient Egypt), but it is usually attributed to Hippocrates C4th BC.
- The theory that there are 4 humours in the body (vital bodily fluids):
 1. Blood
 2. Yellow bile
 3. Black bile
 4. Phlegm

and that these are linked to the elements (earth, air, water, fire) – the body as a microcosm of the world.

- Important that these humours are well balanced

Hippocrates, *On the Nature of Man*:

The Human body contains blood, phlegm, yellow bile and black bile. These are the things that make up its constitution and cause its pains and health. Health is primarily that state in which these constituent substances are in the correct proportion to each other, both in strength and quantity, and are well mixed. Pain occurs when one of the substances presents either a deficiency or an excess, or is separated in the body and not mixed with others.

Mann, W. N. (1983). G. E. R. Lloyd (ed.). *Hippocratic writings*. (trans.) by J. Chadwick (Harmondsworth: Penguin, 1978), p. 262.

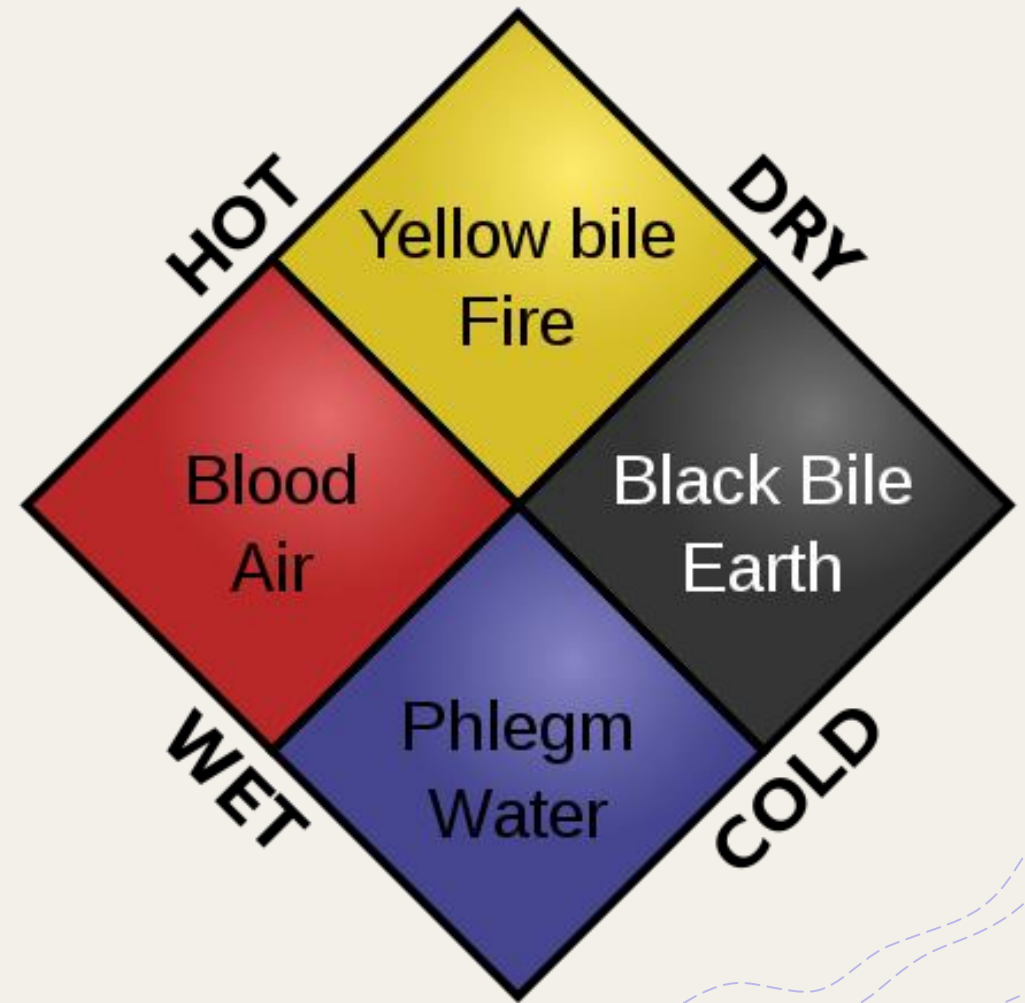
The Four Humours

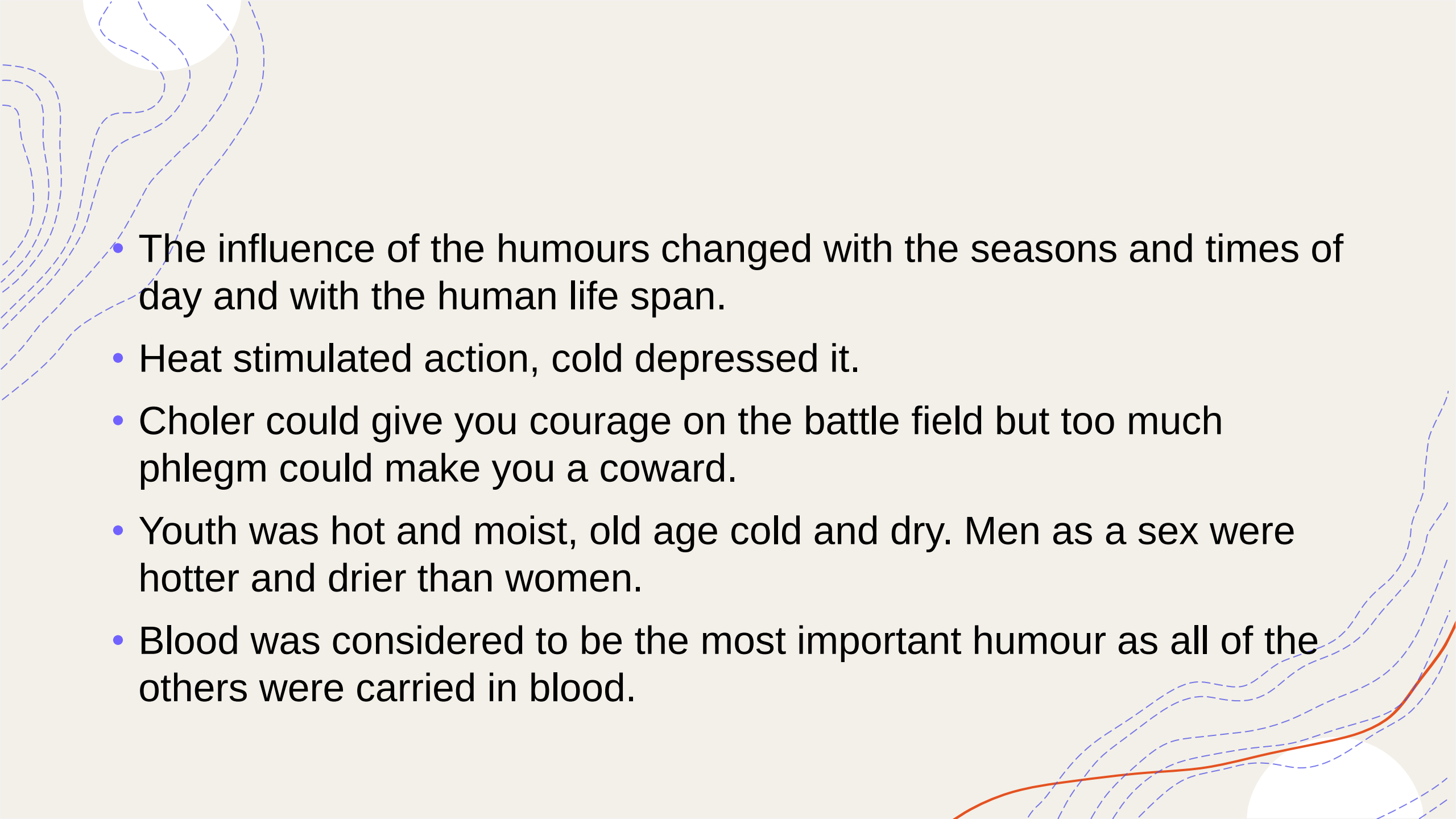
- The balance of humours in the body determine a patient's personality and health.
- dyscrasia = imbalance of the humours
- **Sanguine** – blood, associated with spring and air; sanguine temperament – courage, hope and playfulness; excess – fever and sweating; cure – bloodletting, leeches.
- **Choleric** – yellow bile, associated with summer and fire; temperament – restlessness and aggression; chamomile sometimes used to treat excess of this.

• Coffeevore, CC BY-SA 4.0 <<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons



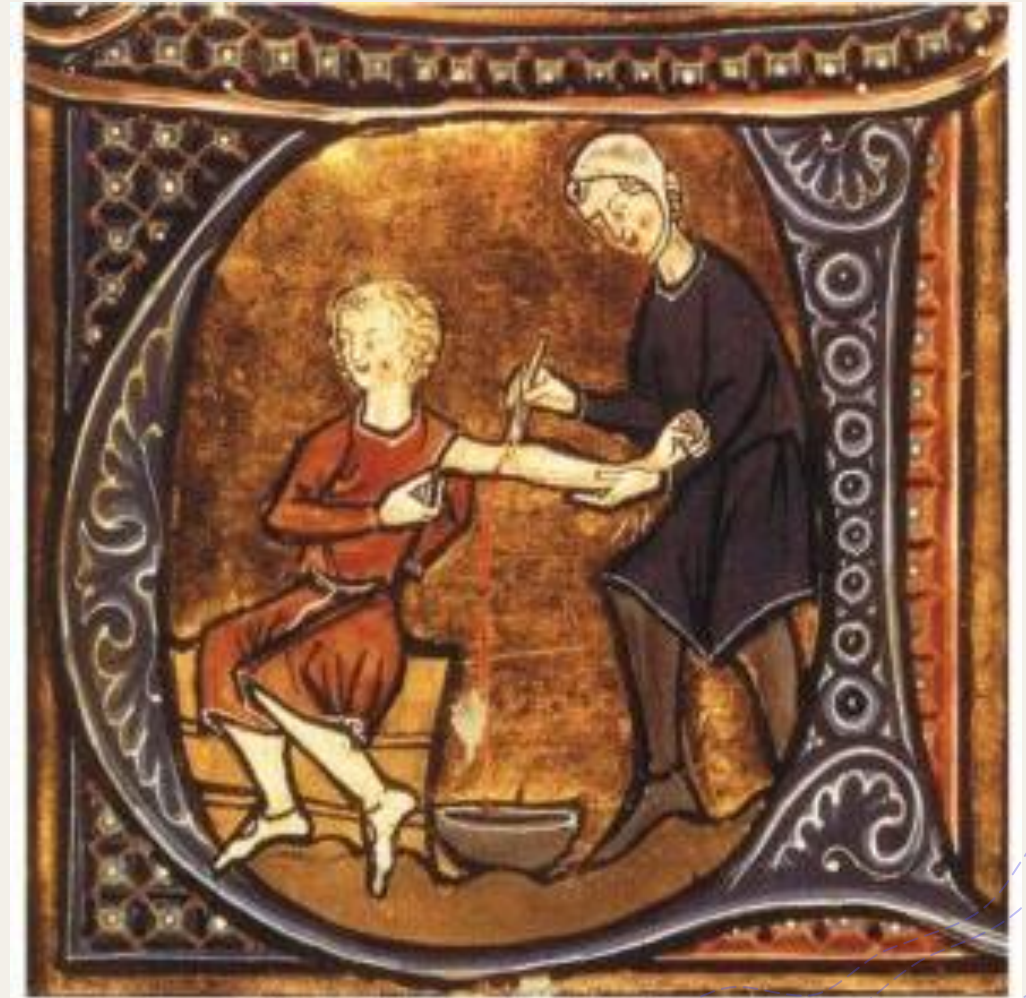
- **Melancholic** – black bile; associated with autumn and element earth; melancholic temperament – introverted, serious, sad and depressed; dietary or digestive problems; doctors might force patients to purge or throw up.
- **Phlegmatic** – phlegm; associated with winter and the element water; too much phlegm – respiratory problems, cough, cold or energy problems; cure – consuming fluids or reducing stress



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- The influence of the humours changed with the seasons and times of day and with the human life span.
 - Heat stimulated action, cold depressed it.
 - Choler could give you courage on the battle field but too much phlegm could make you a coward.
 - Youth was hot and moist, old age cold and dry. Men as a sex were hotter and drier than women.
 - Blood was considered to be the most important humour as all of the others were carried in blood.

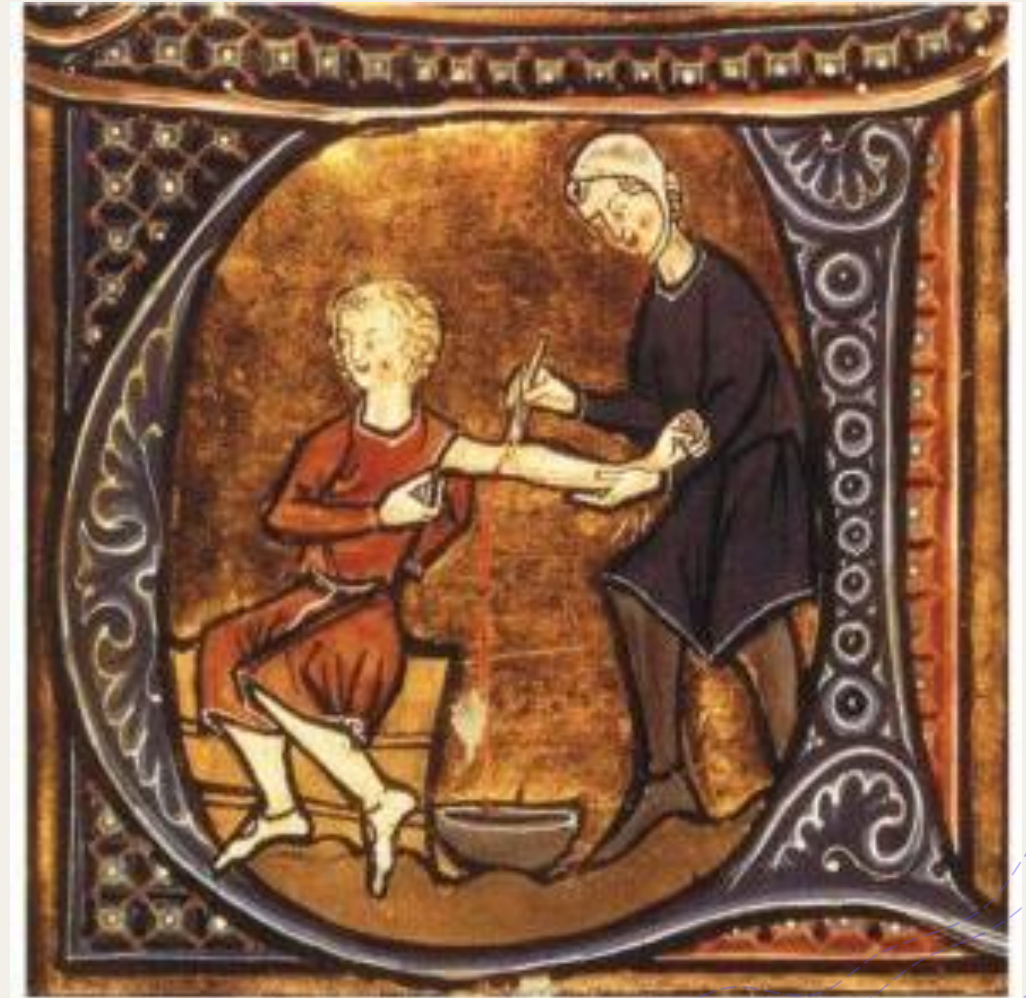
Bloodletting

- Also known as phlebotomy
- Different methods of bloodletting are illustrated from a collection of medieval manuscript in Nancy G. Sirasi, *Medieval and Early Renaissance Medicine* (Chicago: Chicago University Press, 1990), p. 139.
- These include bloodletting – slicing the skin and collecting the blood in bowl; cupping – the practitioner places heated metal cups on the skin to draw the humour to the part of the body being treated;
- Illustrated guides to bloodletting list the sites and note the appropriate veins to incise for different complaints e.g. the basilic vein in the arm should be incised for complaints of the liver or spleen.



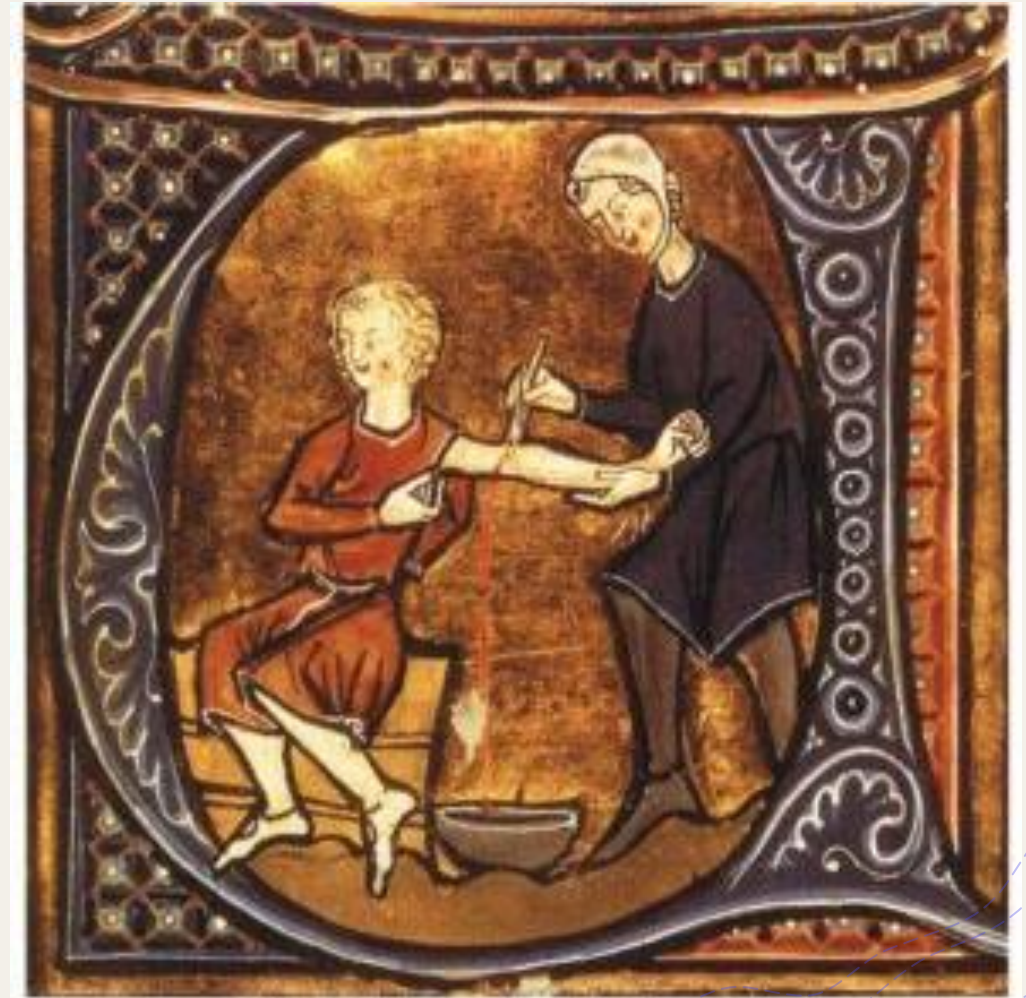
Bloodletting 2

- Unquestionably one of the most frequent forms of general therapy.
- Sirasi: 'The principle behind this ancient and long-lived therapeutic procedure was that bloodletting drew off corrupt matter from the body. Each of the four humours, all of which was contained in blood, was capable of being transformed by disordered complexion into harmful secondary humour that had to be removed if the patient was to recover (or maintain) health. Galen was influential in systematizing and elaborating these concepts as well as many others.' pp.139-140



Bloodletting 3

- Blood commonly drawn from one of the three major veins in the arm – the cephalic, median or basilic veins.
- Other veins could be used to treat specific conditions, e.g. the vein in the forehead for treating melancholy.
- Some medieval manuscripts warn against letting out too much blood and state that the patient should not be made so weak that he/she will faint.
- Unskilled phlebotomy could lead to cutting an artery; swelling of arm; infection and death.
- Bloodletting normally performed by surgical venesection, although leeches were also used.



Using Leeches

- Use of leeches in medicine dates from the Stone Age to the present and has stretched across the globe.
- In the past, leeches were believed to remove evil spirits or humours from the body, while present knowledge of the unique properties of *Hirudo medicinalis* allows for its application to various surgical situations, particularly in reconstructive surgery.

• Image: İZMİR HACAMAT, CC BY-SA 4.0 <<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons



Using Leeches

- The key to the leech's success was discovered in 1884 by British physiologist John Haycraft when he discovered the leech secretes hirudin, a potent anticoagulant.
- Released from the leech's salivary glands, the polypeptide hirudin binds with high affinity to the coagulation enzyme thrombin, blocking further formation of fibrin from fibrinogen and thus inhibiting the coagulation cascade. As such, prior to the discovery of heparin, hirudin was one of the few agents known and used to inhibit clotting and has been used as an anticoagulant during blood transfusions since the early 1900s ([Derganc & Zdravic, 1960](#)).
- In 1955, hirudin was first successfully isolated by Markwardt, reducing the importance of the animal in favour of its product ([Spear, 2016](#)).
- Further investigations through the 1990s resulted in the ability to genetically engineer this potent anticoagulant.

- The benefits of utilizing leeches to alleviate venous congestion in reconstructive procedures include increased viability of the flap from increased venous outflow as well as increased likelihood of replantation success in soft-tissue avulsion injuries.
- Leech therapy remains valuable in contemporary reconstructive surgery as an adjuvant to promote successful flap microvasculature survival, and can even make the difference between limb loss and salvage.
- There is a leech farm in Hendy, near Swansea called Biopharm. Established originally in 1812, it moved to its current base in 1984. Biopharm specialises in the cultivation of the medicinal leech, currently producing the majority of leeches used in modern medicine worldwide.

Sources:

- Derganc M., Zdravic F. 'Venous congestion of flaps treated by application of leeches', *British Journal of Plastic Surgery*, 13 (1960), 187-192.
- Oliver, J. and E. DeLoughery, 'Leeches and Plastic Surgery in the Modern Era', *Plastic Surgical Nursing* 38 (3) (2018), 88 – 89.
- Spear M., 'Medicinal leech therapy: Friend or foe. *Plastic Surgical Nursing*', 36(3) (2016), 121-125.

Astrology

- Medieval astrologers believed that the movements of the stars influenced the weather, growth and success of crops, babies' personalities and illness.
- Parts of the body were associated with particular star signs and this also determined when a patient should be treated for a particular illness or when bloodletting should be performed etc.
- Physicians would often carry almanacs that would include illustrated star charts or figures of Zodiac Man and they would sometimes check the position of the stars before diagnosing what was wrong with the patient.
- There was a close link between the time of year, the moon's seasons and other astrological factors and health and medical treatment, as they would affect the body's humours.

Image: National Library of Wales, CC0, via Wikimedia Commons

Zodiac Man, Abersytwyth, NLW Mostyn 88, p. 26 by Gutun Owain (who was also a Welsh poet) c. 1400



Uroscopy – examining urine

- Medieval doctors often made their diagnoses by examining stools, blood and especially urine. Numerous manuscripts from this period include images of doctors holding flasks of urine up to the light. Some medical treatises, such as this one, contain illustrations showing urine in different colours. This would have acted as a kind of chart, helping doctors to make decisions about their patients.
- Support from properly trained doctors would only have been available to a minority - the wealthy and those in monasteries, for instance. Most ordinary people, particularly those outside towns, would have found it difficult to access professional care. Those in need of medical assistance might instead turn to local people who had medical knowledge derived from folk traditions and practical experience.

Source and Image: British Library, Harley 3140 f. 32v



Uroscopy 2

In medieval manuscripts doctors are often depicted holding up flasks to the light to examine a patient's urine.

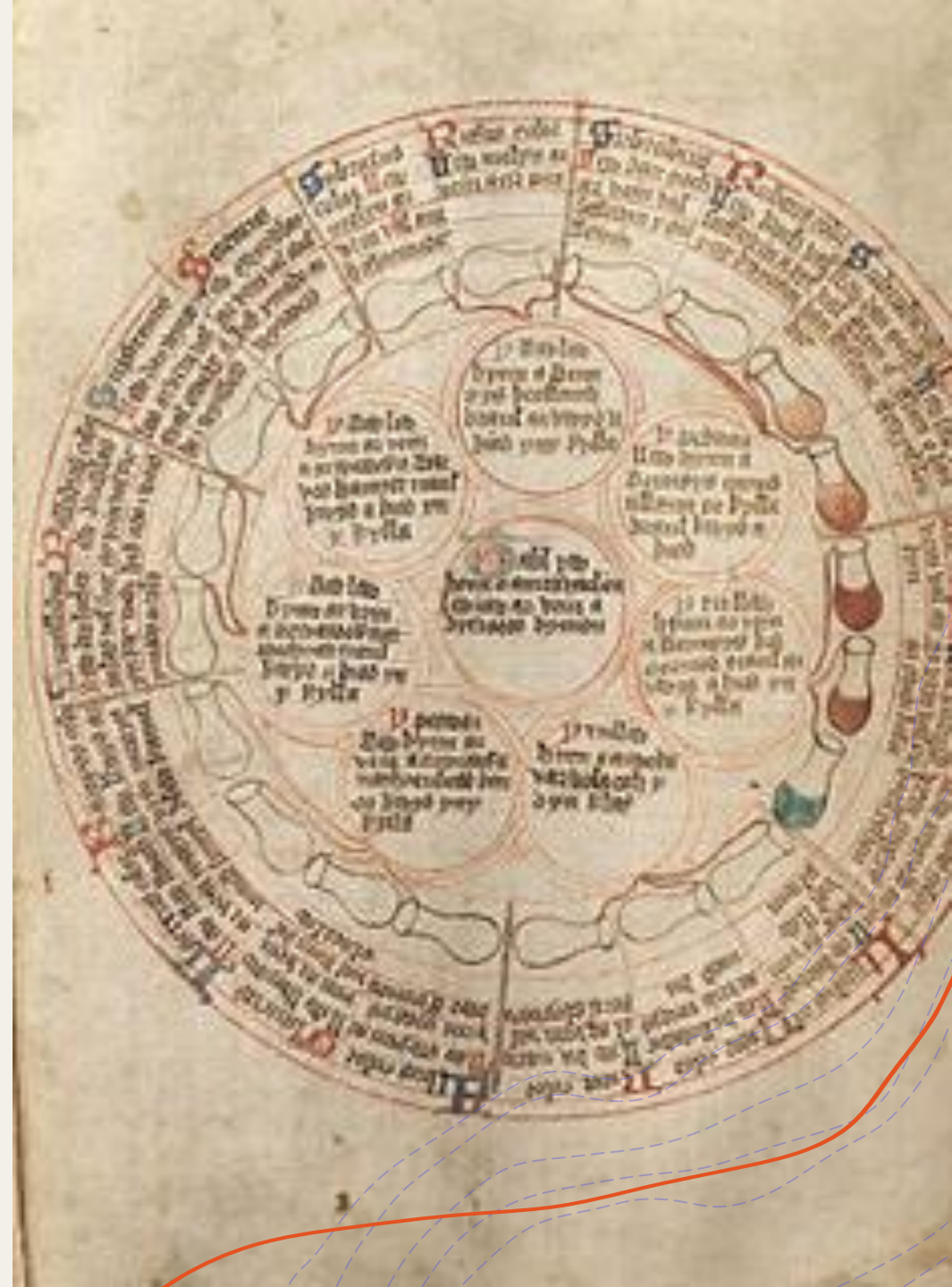
The smell and colour of urine as well as whether or not it contained particles would be used to determine what was wrong with a patient and how they should be treated.

Stools as well as urine could be examined.

This illustration is taken from a medieval Welsh manuscript depicting a wheel of urinary flasks showing the different colours and their meaning.

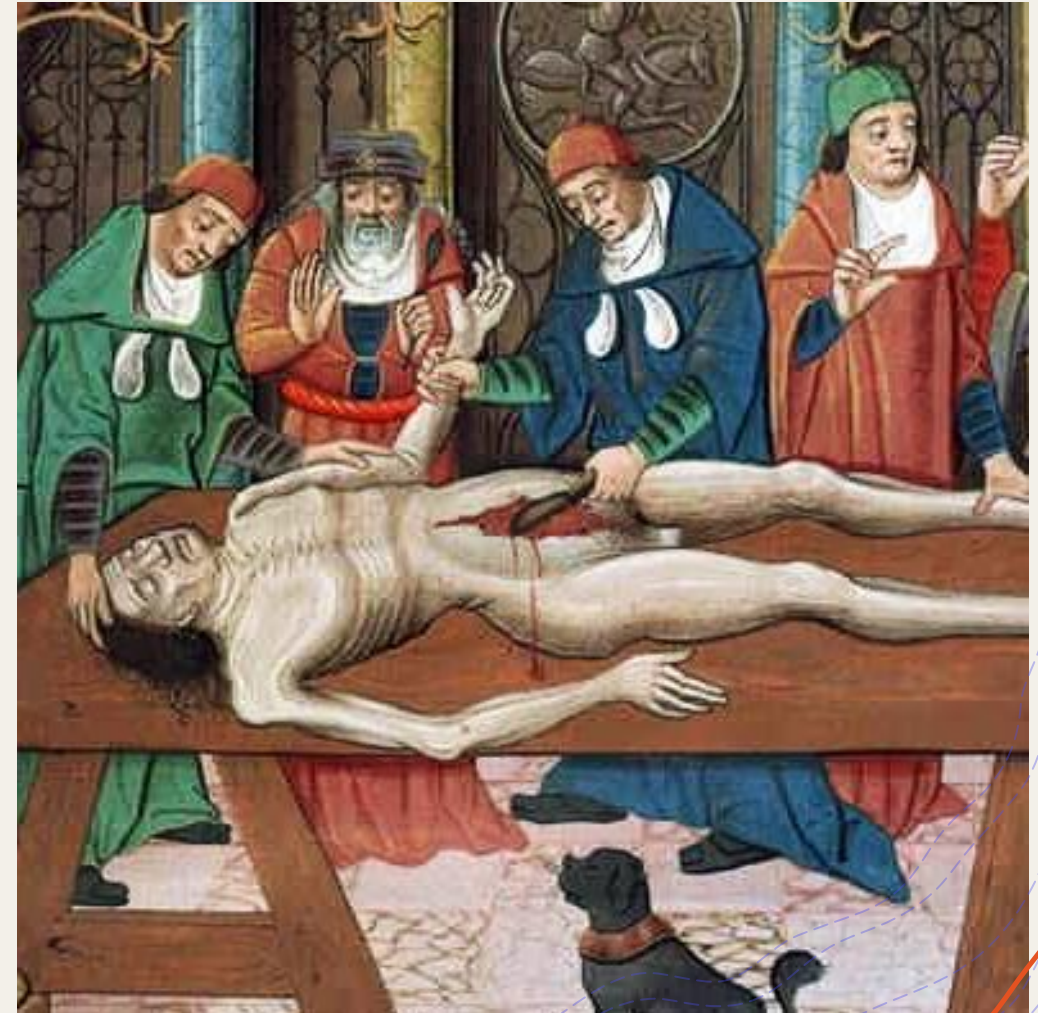
Image: NLW 30206C (Mostyn 88), p. 28 c. 1400 Gutun Owain

National Library of Wales, CC0, via Wikimedia Commons



Surgery

- In the medieval period there were skilled literate surgeons at the head of the profession, but surgical procedures were also carried out by craftsmen who often specialized in a particular form of surgery, e.g. cataracts.
- Some surgeons were often keen to distinguish themselves from these. According to Bruno Longoburgo:
 - 'I think scarcely anyone who is illiterate can understand this, but at the present time...those who exercise this art are for the most part ignorant and stupid peasants; and on account of their stupidity the worst possible diseases are generated in people, by which indeed the patients are killed since surgeons operate neither wisely nor according to certain reasoning, but haphazardly.' (quoted in Siraisi, 177)
- Physicians and surgeons often belonged to separate guilds. From the C12th to the C15th some surgeons followed armies in Europe. War often considered a 'school for surgeons'.
- Galen dissected animals and surgeons were often loathe to disagree with Galenic theory.
- Dissection for medical purposes first introduced in University of Bologna became more prominent from 1299.
- Dissection scene, from 'Le Livre des Proprietes des Choses' by Barthelemy l'Anglais Unknown authorUnknown author, Public domain, via Wikimedia Commons



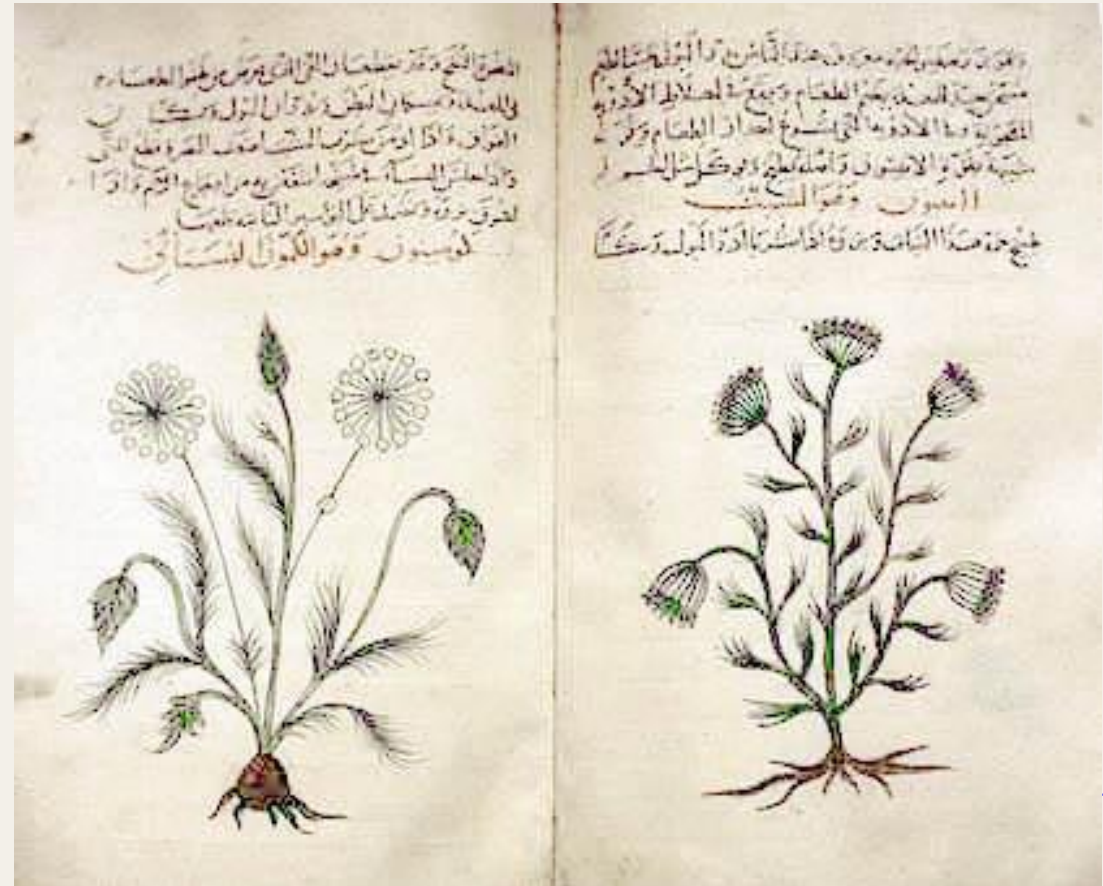
- The image on the right is from an illustrated medical compendium – a fourteenth-century copy of a French translation of *Chirurgia* (Surgery) originally written by the Lombard surgeon Roger Frugardi (d. before 1195)
- Skull fractures were common in battle and it would appear that people must have been treated successfully sometimes for these since medieval skulls with bones that have knitted together are testimony to the fact that people did survive quite traumatic head injuries.
- This MS on the BL website juxtaposes scenes from the Life of Christ with scenes showing surgeons treating head injuries. This might seem a strange mix to us, but Christianity was so prevalent in the Middle Ages that associating faith with healing was perfectly normal. The sick person, as well as the surgeon, might well pray for assistance and the monastic houses were closely associated with medical lore as well as the foundation of hospitals, e.g. St Bartholomew's in London (founded 1123).



Herbal Medicine

- Medical recipes often included herbs and plants (sometimes also minerals)
- Monks and nuns would cultivate herbs with medicinal quantities and dedicated much time to treating the sick (charitable work); also often associated with early hospitals and infirmaries.
- Treatment might include combination of herbal remedies and prayer
- physic gardens – types of herbs grown might depend on local area
- also secular physicians e.g. in Wales Physicians of Myddfai employed by Lord Rhys Gryg
- Folk medicine used herbal remedies passed from one generation to another.

Source: http://en.wikipedia.org/wiki/Image:Arabic_herbal_medicine_guidebook.jpeg Dioscorides: Materia Medica.

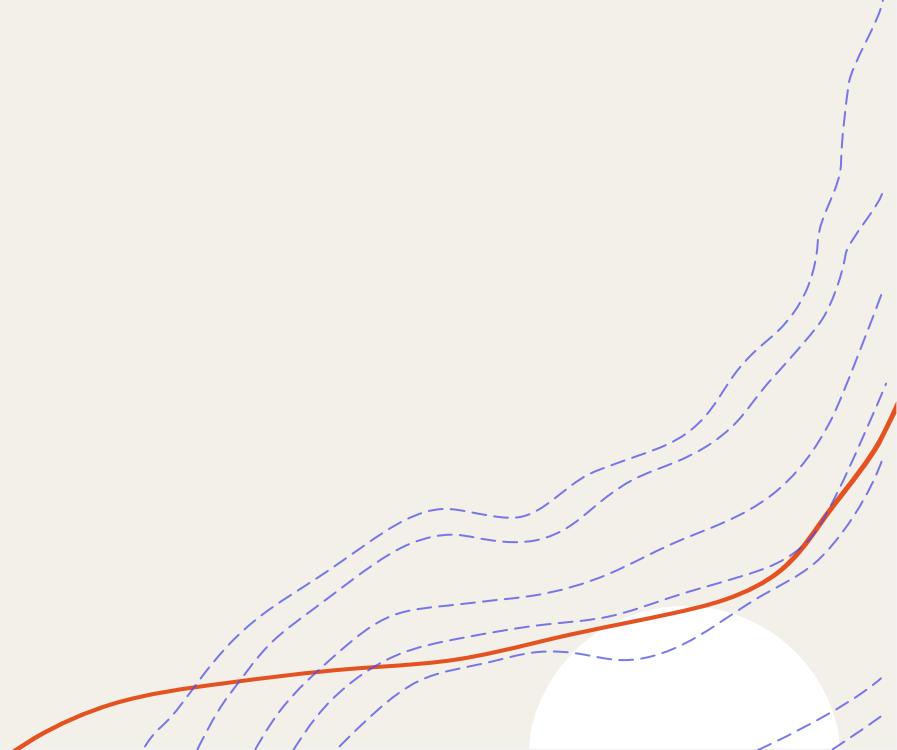




What did medieval medicine have in
common with medicine today?

?

What was different?



What did medieval medicine have in common with medicine today?

Balanced and varied diet important;

Certain lifestyles may make you prone to illness;

Exercise and sleep important to wellbeing;

Herbs and plants used in medicine;

Illnesses believed to spread from person to person;

Diagnosis by testing urine and stools;

Leeches still used in medicine (but for different reasons).

The Plague

+ [In Our Time - The Black Death - BBC Sounds](#)