TR-05 Greek, Roman and monastic Europe: Hippocrates, Dioscorides, Galen, Hildegard, the Trotula and the physic garden

HEALING after the FALL, research library, TR-05

Researched 10 October 2026 by Claude Opus agent for THRIVING after the FALL, Book Four. Library document, unverified.

Scope and method

This report reads the classical and monastic medicine of Europe as theory, empirical practice and harm. It builds on the library and does not repeat it. PH-02 grades Dioscorides' plants one by one, TR-13 covers the humours and the history of bloodletting, TR-04 gives the book's shoulder protocol, PH-01 the temperate garden plants with doses, and TR-15 the dangerous remedies (THRIVING library, PH-02, TR-13, TR-04, PH-01, TR-15). TR-06 and OR-02 were not yet in the library.

Read in full: the Hippocratic *On the Articulations*, *Epidemics*, *Prognostic*, *Airs Waters Places* and *Oath* in Francis Adams' 1849 translation, the Rule of St Benedict chapter 36, the Stiftsbibliothek St Gallen catalogue of 2010, Harrison and colleagues (2015) on Bald's eyesalve, and Hatcher (1986) on the monks of Christ Church Canterbury. Many other sources were read only as abstracts or summaries, and the references say so. Nutton 2004, Cameron 1993, Green 2001, Horn and Born 1979, Beck's Dioscorides, Throop's *Physica* and Riddle 1985 and 1992 could not be read. Following the owner's ruling of 12 October 2026, each tradition is described on its own terms with the evidence attached, and the toxic plants are given history, evidence, dose, toxicity and feasibility, with no preparation.

1. The system on its own terms: nature, humours and the six non-naturals

The Hippocratic physicians of Kos, Knidos and the Aegean in the fifth and fourth centuries BCE understood health as a good blend (*krasis*) of the body's fluids and disease as a bad blend that nature tried to correct. Disease ran a course: the morbid matter was "cooked" and expelled at a crisis, which fell on predictable days, the fourth, seventh, eleventh, fourteenth, seventeenth and twentieth (Adams 1849c, part 20). The physician's work was to read where the body stood in that struggle, to help nature by diet, rest, warmth and evacuation, and not to get in its way.

Galen of Pergamon (129 to about 216 CE) built this into the system that governed learned medicine in Europe and the Islamic world until about 1800. Its practical core was the six non-naturals of later Latin writers: air, food and drink, sleep and waking, motion and rest, excretion and retention, and the passions of the mind. These were the things a person could manage to stay well, and medieval regimen books were built around them (Edward Worth Library, undated). The Salernitan *Regimen Sanitatis*, in Sir John Harington's English of 1607, put it in a couplet: "Use three Physicions still: first Doctor Quiet, Next Doctor Merry-man, and Doctor Dyet" (Wikipedia, *Regimen sanitatis Salernitanum*).

Three features matter for the book. The system treated a whole person in a place, so the physician new to a town studied its winds, water and habits first (Adams 1849d, part 1). It put management before drugs. And its logic of

evacuation, that disease is matter to be removed, made bleeding and purging feel right to physician and patient alike, which is the route to harm TR-13 documents.

2. Hippocrates as a clinical record

2.1 The Epidemics: case histories that admit death

The *Epidemics* are Europe's first surviving bedside case notes. Adams gives 42 case histories, 14 in Book I and 28 in Book III, from Thasus, Abdera, Larissa, Cyzicus and other towns, each with the patient's name or address, the daily course and the outcome. My count of Adams' text gives 7 deaths in Book I and 17 in Book III, with one truncated case whose patient appears to have died: about 25 of 42, roughly 60 per cent [VERIFY, my own count from Adams 1849b]. The cases are mostly acute and puerperal fevers. They were not chosen to show success.

The famous ethic comes from the same book, in Adams' version "to do good or to do no harm", with the claim that the physician must tell the antecedents, know the present and foretell the future (Adams 1849b, Book I). The record shows honest observation, not effective therapy. Nothing in the notes suggests the treatments changed the outcome.

2.2 Prognostic: the bedside signs, tested

Prognostic says the physician should cultivate foresight so that he is trusted, treats the curable better and is not blamed for deaths he foresaw (Adams 1849c, part 1). Its signs:

- **The face.** Sharp nose, hollow eyes, collapsed temples, cold ears, tight dry forehead skin. Ask first about sleeplessness, diarrhoea and hunger, which can produce the face without fatal disease. If it does not recover within a day and a night, death is near (part 2).
- **Posture.** On one side with the limbs slightly bent is best. On the back with the limbs outstretched is worse. Sliding to the foot of the bed is worse still (part 3).
- **Hands, breath, sweat.** Picking at the bedclothes is deadly (part 4). Free breathing favours survival, cold breath is fatal (part 5). Cold sweat on the head and neck is the worst kind (part 6).
- **Belly and urine.** A hard, painful upper abdomen is bad (part 7). Fetid, watery, black or thick urine is the most deadly (part 12).

The modern test is a prospective study in the palliative care units of two tertiary cancer centres. Hui and colleagues followed 357 consecutive patients with advanced cancer, of whom 203 (57 per cent) died, and recorded 52 bedside signs every 12 hours. Eight signs had a specificity above 95 per cent for death within three days, among them non-reactive pupils (positive likelihood ratio 16.7), inability to close the eyelids (13.6), grunting of the vocal cords (11.8) and a drooping nasolabial fold (8.3) (Hui 2015, abstract). The group's earlier set of five signs included absence of the radial pulse, with a likelihood ratio of 15.6 (Healio 2015, secondary) [VERIFY, earlier paper not read]. The drooping fold and the eyes that do not close are the Hippocratic face, measured.

These signs predict death in people who are already dying. They do not tell who can be saved, and they were validated in cancer, not in acute fever or injury [VERIFY, extrapolation]. Grade B, as a tool that tells the household when to stop treating and start comforting.

2.3 Airs Waters Places and the Oath

Airs Waters Places judges a town by its winds, sun, water and way of life (Adams 1849d, part 1). People who drink stagnant marsh water have large, hard spleens, which modern readers take as endemic malaria (part 7). Rain water is the best but spoils quickly and must be boiled and strained, snow and ice water is bad (part 8), and water mixed from many sources causes stone (part 9). The marsh and spleen link is a true observation with a false explanation. Boiling and straining stored rain water is sound. The claims about snow water and stone are not supported.

The *Oath* in Adams' version binds the physician to give no deadly medicine if asked, no abortive pessary, and not to cut for the stone but to leave it to those who practise it (Adams 1849e). The last clause matters as much as the first: know the limit of your skill and send the patient to someone better.

2.4 On Joints and On Fractures: the surviving manipulations

The shoulder. *On the Articulations* gives several methods for the dislocated shoulder: the heel in the armpit (part 3), and reductions over the operator's shoulder, a pestle, a ladder rung and the lever called the *ambe* (parts 4 to 7). The heel method is the "Hippocratic method" still taught. The patient lies on the ground on his back. The operator sits on the injured side, pulls the arm and pushes back with the heel in the armpit, right heel for right armpit, over a small, hard leather ball that lets the heel reach the head of the humerus, while an assistant steadies the sound shoulder (Adams 1849a, part 3). A shoulder that goes back without much swelling is more likely to slip again, and the patient must be told (part 9).

In a Greek randomised trial of 2006 to 2008, first and second-year orthopaedic residents reduced 154 acute anterior dislocations. FARES succeeded in 88.7 per cent, the Hippocratic method in 72.5 per cent and Kocher's in 68 per cent, and the Hippocratic manoeuvre took a mean of 5.55 minutes (Sayegh 2009, abstract). The trial was unblinded, of low power and without long-term follow-up (BestBets, undated). A Pakistani trial of 120 patients reported 83.3 per cent success for the Hippocratic method, 93.3 for a modified chair method, 76.7 for Kocher's and 63.3 for Stimson's (Karachi trial 2024, summary). A network analysis of 14 studies and 1,189 patients found no difference between the Hippocratic and Kocher methods (odds ratio 1.21, 95 per cent confidence interval 0.53 to 2.75) (pooled review, abstract). The method works about three times in four without drugs. Grade A. The book's first line remains the gentler prone method in TR-04, with the heel as second line (THRIVING library, TR-04).

The jaw. One person holds the head. The operator takes the jaw with fingers inside the mouth and outside at the chin, works it gently side to side while the patient relaxes, then in one movement brings it back to its place, pushes it backward and closes the mouth (Adams 1849a, part 30). This intraoral method is still used: Thomaidis, Tsoucalas and Fiska (2018, summary) reduced a bilateral dislocation in an elderly woman under sedation by the "Hippocratic bimanual intraoral technique". The text adds that a bilateral dislocation left unreduced brings fever, stupor and bilious vomiting, and that the patients commonly die on the tenth day (part 31). Yoshida (2025, summary) suggests the fatal cases were rare dislocations of the condyle into the skull. The ten-day death is not seen today and should not be taught as fact [VERIFY]. No modern success rate for the method alone was found. Grade B.

The clubfoot. Most congenital clubfeet can be corrected, says part 62, if treatment begins early. The bones are pushed gently into line and the foot is bound in the corrected position with cerate, compresses and soft bandages "not applied too tight", renewed and continued, as if moulding a wax model, "not by force, but gently". A soft leather or lead sole may be added, and the cure is mastered "only by time" (Adams 1849a, part 62). Ignacio Ponseti's serial manipulation and casting, now the world standard, has been described as a revival of this technique (Annals of Translational Medicine, summary). The Hippocratic principle is grade B. The full Ponseti schedule was not read for this report.

What the texts forbid. Shaking a patient head-down on a ladder to straighten a hunched spine is a show for those who want to astonish the crowd (part 42). Recognise the incurable and do not make it worse (part 58). A complete ankle dislocation with an open wound should not be reduced, because reduced patients die within days of convulsions or gangrene while most left alone recover (part 63). That is the picture of tetanus and wound sepsis. Modern surgery does reduce such joints to save the foot's blood supply, but with washing, antibiotics and tetanus cover [VERIFY]. Without those, the Hippocratic advice may again be the safer one, and the book should treat it as an open question.

The bench. The *scamnum*, a board of about six cubits with windlasses, gave traction on the hip and spine (Adams 1849a, parts 70 to 77). A sixteenth-century traction table from Pennabilli in the Wellcome Collection descends from it, though the attribution is uncertain (Wellcome Collection, undated). What survives is steady traction against

counter-traction, which a village can build from timber and rope.

3. Dioscorides as a system and a text

Pedanius Dioscorides of Anazarbus in Cilicia wrote *De materia medica* in about 70 CE. A survey of the 1568 Matthioli edition counted 536 plant taxa, 924 herbal drugs and 5,314 uses, with roots the commonest part (Staub 2016, abstract). PH-02 grades the plants (THRIVING library, PH-02).

Two points belong here. First, the book shaped what people still use. Leonti and colleagues estimated its causal effect on present plant use in Campania, Sardinia and Sicily at 27.6 per cent, and Galen's at 36.4 per cent (THRIVING library, TR-01). A living Mediterranean folk use is therefore not independent confirmation of a Dioscoridean claim: it may be the claim, copied. That challenges grade C, which asks for convergence across unrelated cultures. Second, nobody has tested the whole book. No study maps it onto the European Medicines Agency monographs. In PH-02's table of twenty-one Mediterranean plants only senna reaches grade A for a use Dioscorides gave (THRIVING library, PH-02). The honest answer to "which of his roughly 600 plants survive a modern test?" is that the test has not been done, and of the subset examined only a handful reach grade B or better.

4. Galen: the system, its limits and where it killed

As physician to the gladiators of Pergamon from about 157 CE, Galen claimed that 60 had died under his predecessor and only two under him, a figure resting on his own boast (Greek Reporter 2023, Wikipedia, *Galen*). He showed by experiment that the voice depends on the recurrent laryngeal nerve and that arteries carry blood [VERIFY, not read in a primary source]. But he dissected animals, not people, and in 1543 Andreas Vesalius's *Fabrica* corrected about 200 of his errors, including the *rete mirabile* at the base of the brain, which exists in ungulates and not in humans. Vesalius doubted Galen's pores in the septum of the heart and rejected them firmly in 1555 (CPP digital library, undated).

Bloodletting in Galen's own words. TR-13 covers the doctrine and its deaths. Worth adding is that Galen's own treatise on venesection set brakes. A summary of the Greek text gives these (Gadsden, undated). A first bleed should not exceed about one *kotyle*, roughly a quarter of a litre [VERIFY, conversion]. Children up to fourteen were not to be bled and the old only with caution. A weak pulse was a contraindication. He sometimes advised bleeding to fainting, up to six *kotylai* at once, but he also recorded that three physicians' patients died after being bled to fainting. The indications included pneumonia, pleurisy, quinsy and suppressed menses. The founder recorded deaths, set an age limit and named a pulse that should stop the knife. Later practice dropped every brake, and the monasteries bled the healthy by the calendar (section 5.5). A theory with good rules still kills when the rules are cut away and the theory stays.

Theriac and opium. Theriac came to Galen from Andromachus, Nero's physician, with about 65 ingredients. Galen's version for Marcus Aurelius had more than 70, opium among them (Wikipedia, *Theriac*). Dioscorides already distinguished the strong latex of the capsule (*opos*) from a weaker whole-plant extract (*meconium*) (Akroterion 2011, summary). Theriac's reputation as a cure-all probably rested on its opium, which eased pain, cough, diarrhoea and fear [VERIFY, my inference].

5. The monastic infirmary

5.1 The Rule, chapter 36

The Rule that Benedict of Nursia wrote in Italy in about 530 put the sick first: "Before all things and above all things care must be taken of the sick" (Stanbrook Abbey, undated). It asks for a separate room, a God-fearing, diligent and careful attendant, baths as often as useful, and meat for the very weak until they recover. The abbot answers for neglect, and the sick are not to burden their carers with excessive demands (Stanbrook Abbey, undated, Saint Meinrad, undated). It is prescription, not outcome, but it is the first European rule that makes care of the sick an institutional duty with a named person answerable.

5.2 The Plan of St Gall

The Plan of St Gall was drawn by monks of Reichenau under their teacher and librarian Reginbert, probably sent by Abbot Heito of Reichenau to Abbot Gozbert of St Gall to give him ideas for a new monastery, in about 819 to 830 (Schmuki 2010). It is an ideal design, probably never built as drawn (medievalists.net 2022). The medical quarter lies in the north-east corner, open to the morning sun. The monks' infirmary adjoins the physicians' house (*domus medicorum*), which holds a room for the critically ill, the medicine cupboard and the physician's lodging, and beyond them lie a bloodletting house and a bathhouse. The physic garden (*herbularius*) sits between infirmary and physicians' house, entered only by a gate in its south-west corner facing them, with roses and lilies under the physician's east windows (Schmuki 2010).

It has sixteen beds, each labelled with one plant, eight in two rows of four either side of a central path and eight in pairs along the walls: *saluia* (sage), *sisimbria* (probably curled mint), *ruta* (rue), *cumino* (the catalogue reads caraway), *gladiola* (iris), *lubestico* (lovage), *pulegium* (pennyroyal), *fenuclum* (fennel), *fasiolo* (a bean), *sataregia* (savory), *costo* (costmary), *fenegreca* (fenugreek), *rosmarino* (rosemary), *menta* (mint), *lilium* (white lily) and *rosas* (rose) (Schmuki 2010). The list largely matches chapter 70 of Charlemagne's *Capitulare de villis* of about 795 to 812, which names about 73 herbs and 16 trees, 14 of them not now identifiable with confidence (Post and Courier, undated, counts differ between sources). The design is the closest historical model to the book's village dispensary: garden, medicine store, critical care room, ward and bath within a few steps of each other, under one physician.

5.3 The Hortulus

Walahfrid Strabo, abbot of Reichenau, wrote the *Hortulus* in Latin verse in about 840 for Grimald, abbot of St Gall. It describes twenty-three plants of his garden (some count twenty-four): sage, rue, southernwood, bottle gourd, melon, wormwood, horehound, fennel, iris, lovage, chervil, white lily, opium poppy, clary, mint, pennyroyal, celery, betony, agrimony, *ambrosia*, catmint, radish and rose (Schmuki 2010). Nine are shared with the St Gall plan. Raef Payne's translation with Wilfrid Blunt's commentary (Pittsburgh, Hunt Botanical Library, 1966) is the standard English version, confirmed from a review record but not read (Medical History, undated). It records what one abbot grew and believed, and no outcomes.

5.4 How many monastery plants hold modern evidence

The plan and the poem together name about thirty distinct plants. Matched to the European Union herbal monographs and the library's grades [VERIFY, my own analysis]:

- **About ten have an EU monograph:** sage, caraway, lovage, fennel, fenugreek, rosemary, rose, wormwood, horehound and agrimony. Lovage root (adopted 20 November 2012), horehound (9 July 2013), caraway and rose were confirmed directly (EMA, Levistici radix, EMA, Marrubii herba, EMA, Carvi fructus, EMA, Rosae flos). The others rest on PH-01.
- **Almost all are traditional-use monographs.** Directive 2004/24/EC asks for 30 years of use, 15 of them in the Union, and efficacy need only be "plausible", with no trial (Directive 2004/24/EC, BASG, undated). A monograph shows long, apparently safe use, not effect.
- **The library grades them mostly C:** sage, fennel, agrimony, rosemary and fenugreek C, wormwood D (THRIVING library, PH-01). None reaches A for the use claimed. Peppermint oil reaches B, but *Mentha* × *piperita* was first recorded by John Ray in 1696 (Wikipedia, *Peppermint*), so the St Gall *menta* was another mint.
- **Two are grade X:** rue and pennyroyal, grown beside the sick room, abortifacients that kill (section 9).
- **One yields a grade A medicine and is the most dangerous plant in the garden:** the opium poppy.
- **Six are foods:** bean, gourd, melon, radish, celery and chervil, whose value was diet.

A third of the monastery garden survives as plausible traditional medicine and none as proven herbal therapy. Two

plants should go, and the most powerful needs the book's strictest rules.

5.5 Bloodletting in the monastery

The customaries made bloodletting (*minutio*) a routine of healthy life. It already appears in the customs of the Aachen synod of 816. Healthy monks were bled on a schedule, never in Advent or Lent or at harvest, then rested for a few days with extra food and wine (medievalists.net 2010). A fifteenth-century plague regimen in the St Gall catalogue still advises monthly bleeding (Schmuki 2010). This was Galen without Galen's brakes, done to the well. The rest and food may have done the monks more good than the blood loss did harm, but there is no evidence either way [VERIFY, my inference].

5.6 What the infirmary achieved: Christ Church Canterbury

The exception to "prescription, not outcome" is the obituary lists of the larger houses. John Hatcher (1986) used those of Christ Church Canterbury to follow 395 monks who entered between 1395 and 1505, mostly aged 16 to 20.

Conditions were the best fifteenth-century England offered: a large infirmary with its own master, lay nurses, three laundrymen, a bathman, a resident physician and an apothecary. Novices were examined by the physician and the infectious isolated. Spring water was piped in through five filtering tanks, and there were drains. The monks were, in Hatcher's account, exceedingly well fed. The precinct held more than 300 people in a city of 4,000 to 5,000 (Hatcher 1986).

The outcome was grim. Life expectancy at 20 was 28 years, so the average monk entering at 20 died at about 48. It ranged from 32.2 years for those entering in 1405 to 1430 down to 23.8 for 1445 to 1470. The crude death rate exceeded 40 per 1,000 in 27 years, and reached 189 per 1,000 in 1457, 139 in 1471 (plague) and 116 in 1485 (sweating sickness). Of deaths with a recorded cause in 1485 to 1507, tuberculosis caused 13 (31 per cent, two-thirds under 30), sweating sickness 9 (21 per cent) and plague 8 (19 per cent). The monks fit the high-mortality model life tables. Hatcher suggests the shared dormitory raised the risk of tuberculosis and that contact with an unhealthy town added to it. He notes that the Benedictines of Saint-Maur in seventeenth and eighteenth-century France lived substantially longer than French laymen until their fifties (Hatcher 1986).

Food, clean water, a sick room and a resident physician did not, without germ theory, protect a community from airborne and epidemic disease. A village infirmary that copies the monastery should copy its isolation of the infectious and improve on its dormitory. For contrast, the great Florentine hospitals, among them Santa Maria Nuova, founded by Folco Portinari in 1288, admitted up to 6,500 patients a year with no more than about 10 per cent dying (Henderson 2006, publisher summary, Hektoen International 2019). They selected the curable and nursed them with food, rest, warmth and cleanliness. A low death rate in a selective hospital and a high one in a closed community are both what care without antimicrobials would produce [VERIFY, my inference].

5.7 The Lorsch pharmacopoeia

The Lorsch pharmacopoeia (Bamberg Msc.Med.1), written at Lorsch in about 795, holds 482 recipes, and its preface defends medicine as a work of charity. It was edited by Ulrich Stoll and Gundolf Keil (Würzburg, 1989) and entered UNESCO's Memory of the World register on 18 June 2013 (Wikipedia, *Lorsch Pharmacopoeia*). It was not read.

6. Bald's Leechbook and the eyesalve: one recipe, one test

Bald's Leechbook, an Old English medical book of the tenth century, gives a salve for a stye. Equal amounts of two *Allium*s, *cropleac* and garlic, are pounded, and equal amounts of wine and ox gall added. The mixture stands nine nights in a brass vessel, is strained through cloth and is applied to the eye at night with a feather (Harrison 2015).

In 2015 a Nottingham team led by the microbiologist Freya Harrison and the Anglo-Saxonist Christina Lee made it in four batches, 25 ml of each ingredient with brass sheet in a glass bottle, nine days at 4 °C. Fresh salve cut *Staphylococcus aureus* in a synthetic wound biofilm a hundredfold, and after nine days by four to five logarithms. No single ingredient worked alone, and omitting the garlic or the wine removed the effect. In excised mouse skin wounds infected with MRSA and soaked for four hours, it cut the bacteria about tenfold, where vancomycin at 100 μg/ml made no significant difference (Harrison 2015). The authors listed the limits: batch variation, two strains, no cytotoxicity testing, and an earlier American attempt by Brennessel that found no activity (Harrison 2015). The university's press release spoke of killing up to 90 per cent of MRSA, which is the tenfold result as a headline (University of Nottingham 2015). Two 2020 papers found the whole mixture was needed against biofilms of five species (Furner-Pardoe 2020, summary), with low toxicity to human cells and slight corneal irritation in a model that passed within ten minutes (Anonye 2020, summary). One historian wrote that he was not excited, since Cameron had already singled out this salve in 1993 (The Conversation 2015, summary).

One careful recipe has reproducible antibacterial activity in the laboratory, and the activity depends on the combination. No human has been treated in a trial. It does not vindicate the Leechbook, which also prescribes charms, or other recipes. ME-01 records a further Nottingham search of 418 recipes in 40 manuscripts (THRIVING library, ME-01). Grade C at most for wounds, and not for the eye outside a trial. It is the model for every old recipe: make it exactly, test it, and say what the test did not show.

7. Salerno: the Regimen, the licence and the Trotula

The licence. The school of Salerno flourished from the eleventh century on Greek, Latin, Arabic and Jewish learning. Its lasting gift is the licence. Roger II of Sicily required physicians to be examined from 1140, and Frederick II's Constitutions of Melfi of 1 September 1231 required them to be examined publicly by the masters of Salerno before practising (Wikipedia, *Constitutions of Melfi*). Later edicts are said to have separated physician from apothecary, so the prescriber did not profit from the drug, and the course to have been three years of logic and five of medicine [VERIFY, secondary]. A district that wants to know who may cut and who may dose could copy Melfi.

The Regimen. The *Regimen Sanitatis Salernitanum* is a Latin poem of advice on the six non-naturals, expanded over centuries and translated by Harington in 1607 as *The Englishman's Docter* (Wikipedia, *Regimen sanitatis Salernitanum*): rest, cheerfulness, moderate eating, sleep, washing and exercise. Grade C as a whole. None of its specific food claims was tested here.

The Trotula. Monica Green's 2001 edition established that "the Trotula" is three texts by different authors, assembled by the mid-thirteenth century: the *Book on the Conditions of Women*, *On Treatments for Women*, which derives from Trota, a woman healer of Salerno, and *On Women's Cosmetics*. Green concluded that the first and third were probably written by men (Green 2001, publisher's description). Close to 200 copies survive, more than 130 in Latin and more than 60 vernacular (Wikipedia, *Trotula*). Green's book was not read. What it tells the midwifery chapter:

- Women's medicine was written down, partly from a woman's practice, and Trota's text is practical.
- The theory is Galenic: the *Conditions of Women* explains most disorders by retained menses, with bleeding as relief.
- MA-01 has already graded the difficult-birth measures (the bath of mallow, fenugreek, linseed and barley, walking, amulets and charms) at D (THRIVING library, MA-01).
- Secondary sources say the Trotula describes repairing a torn perineum with silk thread, later described by François Mauriceau (King's College, undated, blue-stocking.org.uk 2008) [VERIFY, not read in Green]. If confirmed, this is the most important passage for the midwifery chapter, because repair prevents lifelong incontinence.

8. Hildegard of Bingen as a record

Hildegard (1098 to 1179), abbess of Rupertsberg near Bingen, is credited with two medical works. The *Physica* runs to nine books, on plants first and then elements, trees, stones, fishes, birds, animals, reptiles and metals, and has a critical edition by Reiner Hildebrandt and Thomas Gloning (2010). *Causae et curae* survives in a single thirteenth-century copy. Its editor Laurence Moulinier (with Rainer Berndt, 2003) thinks a follower compiled it from Hildegard's material, while Victoria Sweet defends her authorship (The Medieval Review, undated).

As a record the *Physica* is valuable: it is an early witness to German plant names and to what a twelfth-century Rhineland convent knew and used [VERIFY, general description]. As an authority it fails. Its explanations are humoral and cosmological, and its remedies include gems and animal parts. Modern "Hildegard medicine" was created in the 1970s by Gottfried Hertzka and Wighard Strehlow, is accepted neither by evidence-based medicine nor by the Church, and no trials of it were found (bionity, undated). Grade D, and X for any claim to treat cancer or serious disease. The book should cite Hildegard as a witness, never for a dose or an indication.

9. The toxic plants of the classical and monastic record

History, evidence, dose and toxicity only. No preparation is given.

Mandrake (*Mandragora officinarum*, *M. autumnalis*, root and leaf). The sleep and pain drug of the ancient record and, with opium and henbane, of the medieval soporific sponge, for which no source gives a success rate, dose or death rate. The library grades it X (THRIVING library, TR-04, WO-11). Its tropane alkaloids act like atropine. Modern poisonings come from mistaken identity. A 72-year-old Sicilian woman ate *M. autumnalis* picked in mistake for borage (*Borago officinalis*) and developed an anticholinergic syndrome (Piccillo 2006, abstract), and the same group described six Sicilian cases treated by decontamination and, when severe, physostigmine (Piccillo 2002, abstract). Italy recalled frozen spinach in 2017 after a Milan family became confused and amnesic (The Local 2017), and in 2022 ten people in three families near Naples were poisoned (ANSA 2022). No safe dose exists.

Opium poppy (*Papaver somniferum*, latex of the unripe capsule). In the *Hortulus*, in theriac and in every pharmacopoeia from Dioscorides on. Morphine is a grade A analgesic, but crude opium contains 8 to 19 per cent morphine and capsule tissue far less and far more variably (THRIVING library, ME-02), so two batches can differ more than twofold. The library's starting dose is 5 mg of oral morphine four-hourly for an opioid-naive adult, half that for the old, and none for children outside a physician's care (THRIVING library, ME-02, IN-12). In 1854 Thomas Bull estimated that three-quarters of opium deaths were in children under five (THRIVING library, FO-05). The garden can grow the poppy. Only a dispensary with a scale, a register and a trained person should hold the drug.

Poison hemlock (*Conium maculatum*, all parts, especially green fruit). It killed Socrates in Athens in 399 BCE. It causes ascending paralysis and death by respiratory failure, sometimes within three hours, with the mind clear, and has no antidote, so treatment is support of breathing (INCHEM, undated). The two sources differ on dose. INCHEM says 3 mg of coniine has reportedly caused symptoms, 30 to 60 mg may be dangerous, more than 100 mg has killed, and six to eight fresh leaves may be lethal (INCHEM, undated). PH-10 gives about 60 mg as toxic and 150 to 300 mg as fatal (THRIVING library, PH-10). This report disagrees with PH-10 on the fatal range and takes INCHEM's lower figures as the threshold. A review of 30 cases found 56.7 per cent in Italy (Karakasi 2019, summary). The fruit is taken for aniseed, the leaf for parsley or wild carrot and the root for parsnip (INCHEM, undated). Never dig a wild umbellifer root (THRIVING library, PH-10).

Rue (*Ruta graveolens*, leaf). In both gardens. PH-02 records 86 women in Montevideo in 1986 to 1999 who took rue to end a pregnancy, five of whom died (THRIVING library, PH-02).

Pennyroyal (*Mentha pulegium*, leaf and above all the oil). In both gardens. Anderson and colleagues (1996, abstract) measured the toxic metabolite in two cases and reviewed oil ingestions causing liver failure and death. MSKCC counts four deaths and eighteen moderate to severe injuries recorded since 1905 (MSKCC, undated, secondary). Never by

mouth in pregnancy.

Riddle's claims. John Riddle argued in 1992 that ancient women controlled fertility effectively with silphium, pennyroyal, rue, wild carrot seed and similar plants, on textual, animal and demographic evidence. Etienne van de Walle (1997) and the historians Gary Ferngren and Helen King contested both the reading of the texts and the leap from rat studies to human practice (van de Walle 1997, summary). The book should treat the thesis as an argument about history and never as guidance, because the plants that "work" in it are among those that kill.

Evidence grades

Practice	Tradition says	Record shows	Modern inference	Grade
Prognosis by face, posture, breath	Foretells death or recovery	Trusted for 2,000 years	Signs predict death within 3 days (Hui 2015)	B
Regimen of the six non-naturals	Keeps the blend	Prescriptive only	Sound general advice	C
Boiling stored rain water	Restores light water	No outcome record	Kills waterborne pathogens	A
Shoulder, heel method	Restores the joint	Taught continuously	72.5 to 83.3 per cent, equal to Kocher	A
Jaw, intraoral method	Restores the joint	Still used	Standard, no rate found	B
Clubfoot, gentle serial correction	Moulds the foot	Ponseti built on it	Serial casting is standard	B
Ladder succussion	Straightens the spine	Called showmanship	Useless and dangerous	X
Open ankle dislocation left unreduced	Patient survives	Hippocratic observation	Reduced today with antibiotics	D, open
Galenic and monastic bloodletting	Removes morbid matter	TR-13, the customaries	Harmful	X
Infirmary model	Duty of charity	Monks died at about 48	Isolation and water sound, dormitory harmful	B
Garden plants with EU monographs	Many virtues	Traditional use	Plausible, untested	C
Rue, pennyroyal	Bring on menses	Deaths	Abortifacient by poisoning	X
Bald's eyesalve	Cures the stye	One recipe	Active in vitro and ex vivo, untested in people	C (wounds)
Theriac	Universal antidote	Prized 1,500 years	Opium did the work	D
Hildegard's remedies	Order of nature	One tradition	No trials	D, X for serious disease
Mandrake, hemlock, soporific sponge	Sleep for surgery	Abandoned	No safe dose	X

Means ledger

Rung	What it holds	What it changes
Hands and knowledge	Prognostic signs, shoulder and jaw reduction, clubfoot moulding, not harming	Early reduction saves the joint. Honest prognosis spares the dying. Most of what the record got right lives here.
Hearth	Boiled water, regimen, warmth, oxymel (THRIVING library, ME-01), cloth, cerate of wax and oil	Adds nursing and clean water, what the Florentine hospitals did well. Does not change epidemic mortality.
Garden and still	The revised 16-bed garden (Protocol 3), wax, a scale	Grown instead of bought herbs, of modest effect. The scale makes opium dosing possible at all.
Village dispensary	Separate sick room, trained attendant, register, locked poison cupboard	Isolation of the coughing, which Canterbury lacked. The register turns prescription into outcome data.
District infirmary	Physician, ten beds, sedation, traction bench, a Melfi-style licence	Sedated reduction, Ponseti casting, controlled opioids. Licensing stops the charlatan of part 42.
Pre-Fall hospital	X-ray, sedation, antibiotics, surgery, morphine of known strength	Open dislocations reduced safely, tuberculosis cured. The gap is mostly antimicrobials.

Harm test

- **Bloodletting and purging.** Kill by volume loss in the weak, the old and children. Galen's brakes (none under fourteen, caution in the old, none with a weak pulse) were dropped. Bleed only for the few conditions TR-13 lists (THRIVING library, TR-13).
- **Joint reduction.** Force breaks the humerus and injures the vessels and nerves of the armpit [VERIFY, general]. Warning signs: a new crunch, a cold, white or pulseless hand, numbness. Stop after two attempts (THRIVING library, TR-04). Never use a ladder, door or lever.
- **Jaw reduction.** The operator's thumbs are bitten as the jaw snaps shut, so wrap them [VERIFY, standard practice not read]. A jaw with a fracture, or one that fails twice, goes to the district.
- **Clubfoot bandaging.** Too tight and the foot loses its blood. Check the toes at every change.
- **Toxic plants.** Rue and pennyroyal kill as abortifacients, opium kills infants and the naive, hemlock and mandrake kill by misidentification. Never in pregnancy, infants or the dehydrated old. Signs: drowsiness and slow breathing (opium), hot dry skin, wide pupils and delirium (mandrake), weakness rising from the legs with a clear mind (hemlock), vomiting, pain and jaundice (pennyroyal). Stop the plant, keep the airway open, support breathing, send to the district.
- **Old recipes in the eye.** Ox gall, garlic and wine risk chemical injury and contamination.
- **Hildegard and wellness remedies.** The harm is delay until the window for real treatment closes.
- **Theriac and compounds.** Hidden opium in a "tonic".

Red flags

- **The Hippocratic face that does not recover in a day and a night**, once sleeplessness, diarrhoea and hunger are excluded, especially with an absent radial pulse, eyes that do not close and a drooping fold beside the nose: death within three days is likely (Hui 2015). Stop treatments that hurt, keep the patient warm and clean, give sips, ease pain within the opium rules, bring the family in.
- **Picking at the bedclothes, sliding down the bed, cold sweat on head and neck, cold breath.** Prepare the family.
- **A joint that fails two attempts, or a limb that goes cold, white or numb.** Splint in comfort and carry to the district.
- **An open dislocation or fracture.** Clean, cover, splint, tetanus cover if any exists, send.
- **Cough with weight loss and night sweats in a shared sleeping room.** Tuberculosis, the first killer of the Canterbury monks. Separate the patient's sleeping place at once.
- **Bleeding after birth, or a tear into the back passage** (THRIVING library, MA-01).
- **Any child or pregnant woman who has eaten rue, pennyroyal, hemlock, mandrake or opium.** An emergency even without symptoms.

Honest comfort: Hippocrates cultivated prognosis so that the physician would not be blamed for deaths he could not prevent. The modern reason is that the dying should not be tortured by treatment. "This is beyond what we can do here, and I will stay with you" follows the oldest rule in the corpus.

The case against

The strongest case is that this is the oldest romance in Western medicine. Classical authority held European medicine in place for 1,500 years, and what it held in place bled, purged and blistered. Galen is the leading example of theory-driven harm, and the critique runs from Vesalius in 1543 to the historians whose work TR-13 summarises (THRIVING library, TR-13).

Against the monastery as model: its sources are rules, poems and plans. The Plan of St Gall was probably never built. The Rule says what should be done, not what was. The one good outcome series shows the best-equipped infirmary in fifteenth-century England losing its monks to tuberculosis and epidemics at an average age in the forties (Hatcher 1986).

Against the herbal: of thirty monastery plants two kill and none is proven. EU monographs give plausibility, not proof, and Leonti's work shows that much Mediterranean agreement is one book copied (THRIVING library, TR-01).

Against the rediscoveries: the eyesalve's "90 per cent" was a tenfold reduction in excised mouse skin. Hildegard medicine is a 1970s brand. Riddle's ancient contraception is contested by van de Walle, Ferngren and King.

What survives is not small: a shoulder reduction that still works three times in four, an unchanged jaw reduction, gentle serial correction of the clubfoot, signs that tell when a patient is dying, an ethic of not harming, boiled water and a design for caring for the sick. Old does not mean safe. Neither does it mean useless.

10-line summary

1. The Hippocratic shoulder reduction succeeds in about 72 to 83 per cent of modern trial cases, as well as Kocher's.
2. The Hippocratic jaw reduction and gentle serial correction of clubfoot remain standard practice.
3. Hippocratic prognostic signs predict death within three days with high specificity but do not tell who can be saved.
4. About 60 per cent of the 42 *Epidemics* patients died: honest observation, not effective therapy.

5. Galen limited bleeding (none under 14, none with a weak pulse), and later practice ignored him.
6. About a third of the thirty monastery garden plants have EU traditional-use monographs. None is proven, two kill.
7. The best monastic infirmary in fifteenth-century England left its monks a life expectancy at 20 of 28 years.
8. Tuberculosis led their recorded deaths. Isolation and sleeping arrangements matter more than herbs.
9. Bald's eyesalve is active in the laboratory and untested in people.
10. Salerno's lasting gift is the licence: public examination of anyone who would practise.

Open questions

- Should an open ankle dislocation be reduced after the Fall, without antibiotics or tetanus cover?
- Do the prognostic signs perform as well in acute infection and injury as in advanced cancer?
- What is the success rate of the Hippocratic jaw reduction without sedation?
- Does the Trotula describe silk repair of the perineum, and in which text?
- Did routine monastic bleeding shorten life, once the rest and extra food are separated out?
- How much of the agreement of European herbals is one source copied?
- Would the eyesalve, or another tested recipe, work on human wounds in a trial?

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At the bedside after the Fall

Household. Needs: the prognostic signs written down, two adults who have learnt the shoulder and jaw reductions, clean cloth, wax and oil for cerate, a pot to boil water, and the regimen of rest, warmth, food and drink. It reduces a dislocation within the hour, nurses fever, recognises dying and stops pointless treatment. It grows no toxic plants. First failure to expect: a shoulder reduced with too much force, or a fracture taken for a dislocation.

Village of 300. Needs: a trained lay healer and a deputy, a sick room apart from the sleeping rooms, the sixteen-bed garden beside it (Protocol 3), a locked cupboard, a scale and a register of every patient, treatment and outcome. The poppy, if kept, is under the healer's lock. It copies St Gall in putting garden, store and sick room together, and Canterbury in isolating the infectious. First failure to expect: tuberculosis spreading in a shared sleeping room before anyone names it, and the register lapsing within a year.

District of 3,000. Needs: a physician or experienced nurse, ten beds on the St Gall pattern, a traction bench of timber and rope, rigid bandage for clubfoot casting, plants from the village gardens, opium only by weighed dose, and a Melfi-style board that examines anyone who would reduce joints, dose opium or attend births. First failure to expect: a confident practitioner who bleeds or purges because it looks like action, which TR-13 shows will reappear without being taught (THRIVING library, TR-13).

Protocols

Protocol 1. Prognosis by observation

At every visit to a seriously ill patient, at least every 12 hours, written in the register.

1. Ask: has the patient slept, had diarrhoea, gone without food? If so the face may look grave without fatal illness. Recheck in 24 hours.
2. Face: sharp nose, hollow eyes, sunken temples, cold ears, tight dry forehead, drooping fold beside the nose, eyes that do not close in sleep.
3. Posture: on one side with limbs bent is best, flat with limbs straight is worse, slid down the bed is worst.
4. Hands: picking at the bedclothes is grave.
5. Radial pulse at the wrist: its absence is the strongest single sign of death within three days.
6. Breath: easy is good. Grunting, rattling or cold breath is grave.
7. Skin: cold sweat on head and neck is grave.
8. Urine: black, fetid, watery or very thick is grave.
9. If three or more grave signs persist for a day and a night [VERIFY, my threshold], tell the family death is likely within days, stop distressing treatments, keep the patient clean, warm, turned and given sips.
10. Tolerance: these signs predict death in the dying. Their absence does not mean safety.

Protocol 2. The regimen of the six non-naturals, for the sick room

1. **Air.** A window open by day. The sick sleep apart from the healthy, the coughing apart from everyone.
2. **Food and drink.** Boiled, strained water freely in small amounts. Light food as appetite allows, meat or eggs for the weak, as the Rule allowed.
3. **Sleep.** Dark and quiet at night. No waking for treatment between midnight and dawn unless a red flag appears.
4. **Motion and rest.** Bed rest in fever. Walking once it breaks, a few minutes three times a day [VERIFY, my suggestion].
5. **Excretion.** Record stools and urine daily. No purging, no bleeding.
6. **Passions.** One named attendant, the Rule's diligent and careful carer. Calm visitors. Honest news.
7. **Cleanliness.** Wash as often as useful. Clean bedding weekly and at once when soiled [VERIFY, my suggestion].

Protocol 3. The physic garden of sixteen beds, revised

Lay it out as St Gall did, eight beds in two rows of four either side of a central path and eight in pairs along the walls, with the only gate facing the sick room. Grow from bought or known seed, and label every bed. Doses for kept plants come from PH-01 and PH-02, not from this report.

Bed	St Gall plant	Keep or replace	Why
1	Sage	Keep	Gargle, grade C (PH-01)
2	Curled mint	Keep	Digestive, food
3	Rue	Replace with thyme (*Thymus vulgaris*)	Rue is X
4	Caraway	Keep	Wind and colic, EU monograph
5	Iris	Replace with marigold (*Calendula officinalis*)	Iris root is an irritant purgative [VERIFY]

Bed	St Gall plant	Keep or replace	Why
6	Lovage	Keep, label clearly	EU monograph. Aconite has been mistaken for it (EMA, Levistici radix)
7	Pennyroyal	Replace with lemon balm (*Melissa officinalis*)	Pennyroyal is X
8	Fennel	Keep	Colic, grade C. Never confuse with hemlock fruit
9	Bean	Keep	Food
10	Savory	Keep	Food, digestive
11	Costmary	Replace with chamomile (*Matricaria chamomilla*)	No monograph found for costmary
12	Fenugreek	Keep	Boil poultice (PH-02), grade C
13	Rosemary	Keep	EU monograph, grade C
14	Mint	Keep	Digestive
15	White lily	Replace with garlic (*Allium sativum*)	Garlic is in the one tested recipe
16	Rose	Keep	Petals and hips, grade C (PH-01)

Never grow rue, pennyroyal, mandrake, henbane or hemlock in it. The poppy, if grown, goes in a separate locked plot under the healer's control and is recorded.

Protocol 4. The infirmary, on the St Gall and Canterbury pattern

1. One sick room apart from the sleeping quarters, with its own outside door. At least 4 beds for a village of 300 [VERIFY, my suggestion].
2. A smaller second room for the critically ill or infectious, as in the St Gall physicians' house.
3. A locked medicine cupboard holding the scale, the register and any opium.
4. The physic garden next door, its gate facing the sick room.
5. A wash room beside the sick room. The latrine downhill and downwind, never near the water source.
6. Water filtered and boiled, as Canterbury piped and filtered its own.
7. One named attendant every shift. The healer answers for neglect, as the abbot did.
8. Coughing patients never share a sleeping room with the healthy.
9. A register of name, date, complaint, signs, treatment and outcome, read every three months to see what works.

Protocol 5. Reducing a dislocated jaw (On Joints part 30)

Signs: mouth stuck open, chin forward, teeth will not close. One side only: chin pushed to the other side.

1. Patient on the back, head on a firm, well-filled cushion, an assistant holding it steady.
2. Wrap both thumbs in several layers of cloth [VERIFY, standard practice].
3. Thumbs inside the mouth on the lower back teeth, fingers outside under the jaw and at the chin.
4. Ask the patient to relax. Move the jaw gently side to side for a minute.
5. In one steady movement press down on the back teeth, push the jaw backward and lift the chin to close the mouth, sliding the thumbs out to the side.

6. Bind loosely under the chin and over the head with a soft bandage for 1 to 2 days [VERIFY, duration]. Soft food. No wide yawning.
7. After two failed attempts, or if a fracture is suspected (a step in the teeth, blood in the mouth), bind loosely and send to the district.

Protocol 6. Reducing a dislocated shoulder

First line is the prone method in TR-04, Protocol 3 (THRIVING library, TR-04). Second line, the Hippocratic heel (Adams 1849a, part 3):

1. Patient on the back on a firm floor. Record the wrist pulse and feeling in the arm.
2. A firm padded ball of rolled cloth, about fist size, in the armpit.
3. Sit on the injured side, shoe off, your heel (right for right) against the ball.
4. Hold the wrist with both hands and pull steadily along the arm, leaning back, while an assistant holds the sound shoulder.
5. Keep the pull steady. In the Greek trial the manoeuvre took a mean of about 5.5 minutes (Sayegh 2009). Do not jerk. A clunk and a round shoulder mean success.
6. Recheck pulse and feeling. Sling the arm to the side for 1 to 3 weeks (THRIVING library, TR-04).
7. Warn that it may slip again, especially if there was little swelling (Adams 1849a, part 9).
8. Stop after two failed attempts.

Protocol 7. Clubfoot, as a bridge to the district

1. Start as soon after birth as possible.
2. Move the foot gently towards the normal position, never by force.
3. Bind it there with soft padding and a soft bandage, not too tight.
4. Check the toes within an hour and at every feed: pink and warm [VERIFY, my suggestion].
5. Renew and correct a little further at each change.
6. Send the child to the district for Ponseti-pattern casting as soon as possible.

Numbers to carry

1. **72 to 83 per cent.** Success of the Hippocratic shoulder method in trials.
2. **Two attempts.** Then stop and send.
3. **A day and a night.** If the Hippocratic face does not recover in that time, death is near.
4. **3 days.** The window that the late bedside signs predict.
5. **14 years.** Galen's age limit for bleeding. Bleed no one.
6. **28 years.** Life expectancy at 20 of the best-cared-for monks in fifteenth-century England.
7. **31 per cent.** Share of their recorded deaths caused by tuberculosis.
8. **16 beds.** The St Gall physic garden, next to the sick room.
9. **8 to 19 per cent.** Morphine in crude opium, a twofold spread.
10. **Above 100 mg.** Coniine reported fatal. Six to eight fresh hemlock leaves may kill.

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