

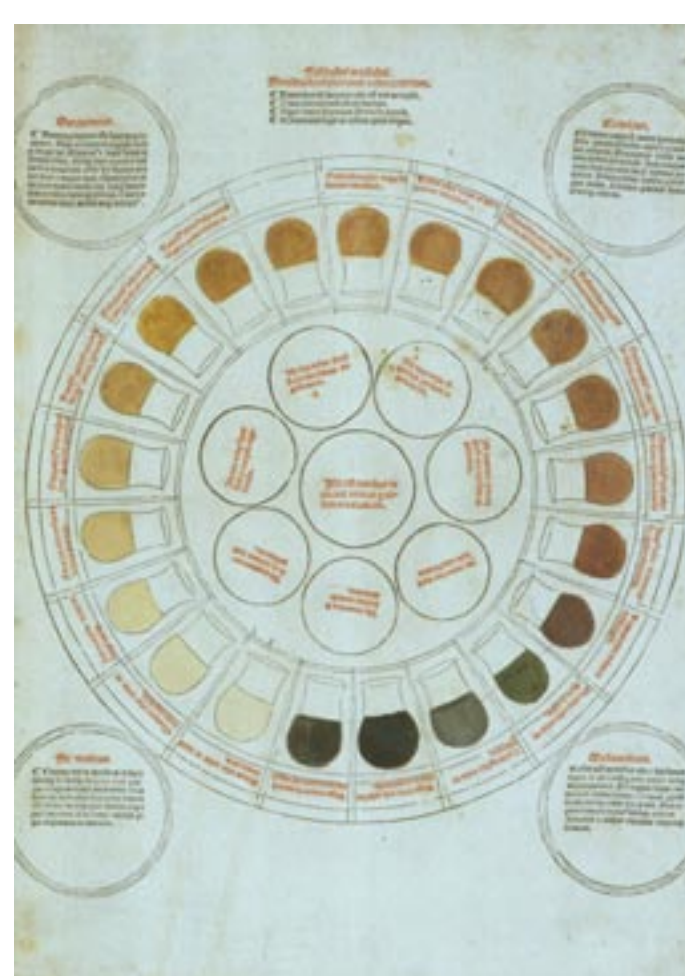
The relation between text and colours in medieval urine wheels

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Three medieval urine wheels in the Royal Library of Copenhagen

In the Center for Manuscripts & Rare Books at The Royal Library of Copenhagen there are three so-called urine wheels: one in "Fasciculus Medicinae" by Johannes de Ketham, Venice 1491, and two others in manuscript form, one being earlier and the other later than "Ketham", but still based on an older manuscript as stated by Karl Sudhoff in 1912.

The "Ketham" wheel (Inc. Haun. 2421) with its 21 printed urine glasses has colours added by hand in a chromatic scale, including the captionless 21st urine glass. This wheel has no pointing arrows to the seven inner circles that demonstrate the different stages of percolation, and the fact that the number of references in these only add up to 20, confirms the impression that one urine glass probably has been added by mistake. I suggest that the 21st urine glass represents the healthy condition (color naturalis).



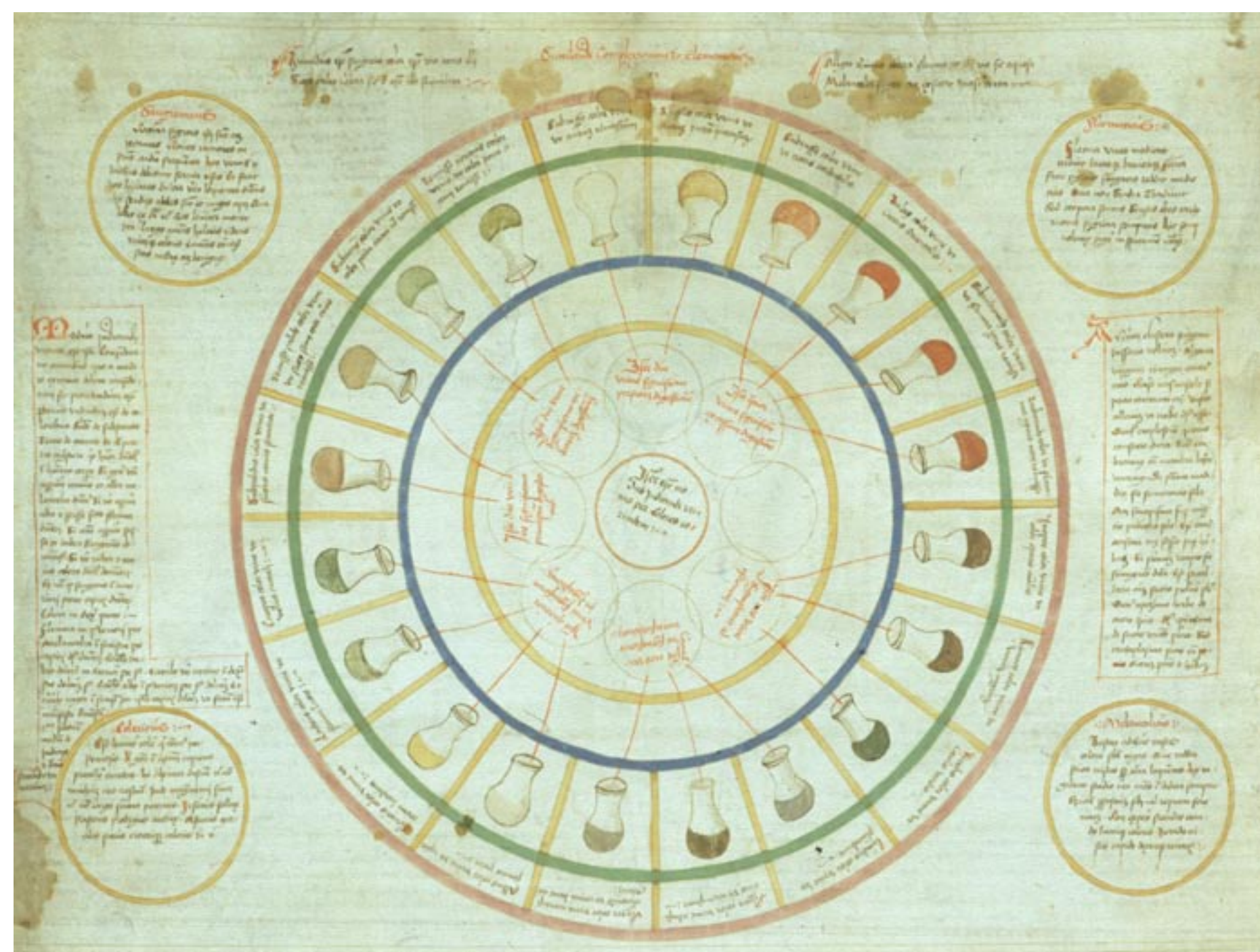
Inc. Haun. 2421

The slightly bigger, older wheel of manuscript NKS Fol. 84b, sheet 4, has 20 urine glasses coloured in a very unsystematic way but with pointing arrows in agreement with tradition. The term inops is missing in its caption – perhaps reflecting an understandable doubt as to the meaning of this term due to ignorance of its Greek origin (oinopos). This manuscript has no explanatory text.



NKS Fol. 84b, sheet 4

The most interesting wheel is the very large one in manuscript NKS Fol. 84b, sheet 5. It has 20 urine glasses with a strange array of colours added to them. It also has the traditional pointing arrows correctly connected with seven inner circles; the addition of an extra inner circle is obviously a mistake as seen by the lack of text and pointing arrows. The two outer circles, indicating the temperaments cholericus and flegmaticus, have been interchanged, distorting the whole meaning of the scheme. This manuscript is rich in accompanying text, having two more columns than the "Ketham" text.



NKS Fol. 84b, sheet 5

The widespread existence of copies of urine wheels from this period suggests a growing use of imagery in education and practice, but a full understanding of the true powers of accurate illustration has not yet been attained.

Thus the authority of the urine wheels is limited to the textual definitions of the colour names.

The colour captions include textual definitions

Albus color ut aqua fontis
White as wellwater, i.e. clear

Glaucus color ut cornu lucidum
Light blue/green/grey as lucid horn

Lacteus color ut serum lactis
Milky as whey of milk

Caropos color ut vellus cameli
Bluish-grey as camel skin

Subpallidus color ut succus carnis semicoctus non remisse
Slightly pale as a not reduced juice of meat

Remissus pallidus ut succus carnis semicoctus remissi
Reduced pale as reduced juice of meat

Subcitrinus ut pomi subcitrini non remissus
Pale yellow as of a not reduced lemon

Citrinus color ut pomi citrini remissi
Yellow as of a reduced lemon

Subruffus color ut aurum remissum
Slightly ruddy as an alloy of gold

Ruffus ut aurum purum intensum
Ruddy as pure intense gold

Subrubicundus color ut crocus occidentalis
Slightly red as occidental saffron

Rubeus ut crocus orientalis
Red as oriental saffron

Subrubicundus ut flamma ignis remissa
Slightly red as a lowered flame of fire

Rubicundus ut flamma ignis non remissa
Red as a flame of fire not lowered

Inops color ut epatis animalis
Wine-red as of animal liver

Kyanos color ut vinum bene nigrum
Deep blue as very dark wine

Viridis color ut caulis viridis
Green as green cabbage

Lividus color ut plumbum
Livid as lead

Niger ut incaustum
Black as ink

Niger ut cornu bene nigrum
Black as very dark horn

*Latin text quoted from:
Pinder, Ulrich: "Epiphania Medicorum."
Nuremberg 1506*

Description of two Copenhagen urine wheels

Karl Sudhoff: "Ein Sammelheft von "Ketham"-Tafeln, teilweise mit Text, auf der Königlichen Bibliothek zu Kopenhagen." In Neue Beiträge zur Vorgeschichte des "Ketham". Arch. Gesch. Med. 1912, pp. 288-9, 301:

Auf der Kongelige Bibliotek zu Kopenhagen stieß ich beim Durchmustern der reichen dortigen Handschriftenbestände auf einen dünnen Band in Imperialfolio, Ms. Ny Kgl. Saml. 84b, das sechs (ausser dem letzten) beiderseitig beschriebene, riesige Pergamentblätter birgt, offenbar verschiedener Provenienz und aus verschiedener Zeit stammend und erst im Laufe des 19. Jahrhunderts zusammengebunden in einem riesigen Hefte in Pappe mit Leinenrücken, dessen Vorder- und Rückendeckel 750 mm Höhe bei 621 mm Breite messen...

Diese "6 Folia membranacea" sind nun von drei verschiedenen Händen geschrieben:

I. Blatt 1, 2, 3 und 5 von einer Hand aus dem Beginne des 16. Jahrhunderts, die noch etwas älteren Duktus in manchen Einzelheiten erkennen zu lassen scheint. Auf der Rückseite des ersten Blattes hat sie am Fusse der 3. Kolumne die Jahrzahl 1519 mit roter Tinte notiert.

II. Blatt 4 ist von einer wesentlich älteren Hand geschrieben, die bestimmt in die erste Hälfte des 15. Jahrhunderts gehört, vielleicht noch in dessen erste Anfangsjahre.

III. Noch etwas früher, bestimmt in die Zeit um 1400 spätestens, ist der Schreiber des letzten (6.) Blattes zu setzen, dessen Rückseite unbeschrieben ist.

Die Hand des ersten Schreibers aus dem Anfange des 16. Jahrhunderts hat nun folgende Ketham-Abschnitte samt ihren Bildern kopiert, doch unter keinen Umständen einen der Drucke aus dem letzten Jahrzehnt des 15. oder der ersten Jahrzehnte des 16. Jahrhunderts als Vorlage benutzt, sondern sich einer handschriftlichen Quelle bedient...

Der Text jedes der einzelnen Kethamabschnitte bedarf einer besonderen Untersuchung. Sie sind nicht zusammen entstanden, vielmehr war jeder bis zu gewissem Grade selbständig. Dem Hartexte samt der Harnglastafel habe ich eine weitsichtige Untersuchung gewidmet, die ich über kurz oder lang hier im Archiv veröffentlichen will.

The probable textual archetype
Luciana Rita Angeletti and Valentina Gazzaniga: "Theophilus' Auctoritas: The Role of "De urinis" in the Medical Curriculum of the 12th-13th Centuries". Am. J. Nephrol. 1999, pp. 169-170:

Theophilus has been conventionally placed in the 7th century AD, but he may have lived in the 9th and perhaps even in the 10th century...

"De urinis", therefore, represents an attempt, as noted by Theophilus in the introduction, to offer a coherent interpretation of the significance of different types of urine and of the role of uroscopy. In this, he was fully aware that he was introducing a doctrinal innovation and teaching all those who wanted to learn the discipline of urology which was essential, because urine is a basic sign of health or illness of hidden parts of the body and helps to understand how blood is formed: "Such is urine...Urine is blood percolation" (Ideler II (ed): Theophili De urinis, in: Physiici et medici graeci minores. Amsterdam. Hakkert. 1963). Urine is considered, in fact, the secretion of blood, because the perfect formation of blood by hemopoiesis also determines that of urine. If this does not occur, the urine will have the same characteristics as blood. Particular attention is devoted to the different colors of urine, distinguished according to a conventional chromatic scale which is stressed also by the masters of Salerno.

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