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## Medicine and Doctoring in Ancient Mesopotamia

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# Medicine and Doctoring in Ancient Mesopotamia

## **Cover Page Footnote**

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## Medicine and Doctoring in Ancient Mesopotamia

Medicine in the ancient Near East prior to 1000 BCE was a well-developed profession by the time the Old Babylonian and Old Assyrian periods arrived (c. 2100-1500 BCE) and was more refined by the time of the Bronze Age collapse (c. 1200 BCE) and the subsequent rise of the Neo-Assyrian Empire, which continued past the temporal bounds of this study. This may appear to be too broad a subject and period of time to thoroughly investigate in one attempt, but ancient medical practices in this geographic area are mostly known through cuneiform tablets, few of which involve medicine or survive at all. In addition, only some of the extant scholarship on the subject is in English: two of the most important corpuses of medical cuneiform texts from Ashurbanipal's library have only been translated into German and French.<sup>1</sup> Majno notes that there are approximately a thousand tablets and fragments pertaining to Mesopotamian medicine for the entire span of 3000 BCE to the Common Era (1975, 36). The limited textual and supplementary archaeological materials allow the extant evidence for medical practice in ancient Mesopotamia to be explored summarily. There was little in the way of explicit medical theory recorded in cuneiform texts, so medical theory and anatomy will not be treated.<sup>2</sup> The types and practices of medical practitioners will first be explained, and then pharmaceutical medicine and surgery will be elaborated on. While the most common methods of healing involved both religious ritual and the utilization of physical treatments, the physical treatments and those who delivered them will be primarily addressed. Some scholars posit that when placed in their cultural contexts, Mesopotamian pharmaceutical and surgical treatments were inextricable from religious treatments such as divination and healing ritual; however, when examined separately from the religious aspects of medicine, physical treatments were more widespread, advanced, and effective than many give the ancient Mesopotamians credit for.

When speaking of the Babylonian practice of medicine, the Greek historian Herodotus said, "They bring out all their sick into the streets, for they have no regular doctors. People that come along offer the sick man advice, either from what they personally have found to cure such a complaint, or what they have

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<sup>1</sup> Salim Mujais, "The Future of the Realm: Medicine and Divination in Ancient Syro-Mesopotamia," *American Journal of Nephrology* 19 (1999): 133-134.

<sup>2</sup> Guido Majno, *The Healing Hand: Man and Wound in the Ancient World* (Cambridge: Harvard University Press, 1975), 53.

known someone else to be cured by. No one is allowed to pass by a sick person without asking him what ails him.”<sup>3</sup> This description of Old Babylonian medical practice is categorically untrue based on the culture’s own texts.<sup>4</sup> Ill people may have very well discussed their ailments with neighbors on the street, but doctoring and places of recovery were far from non-existent even excluding healing temples. Herodotus had the mindset of a medical tourist, and was likely more interested in exalting his own Greek culture than in taking an emic point of view. Even modern texts, such as Barber’s paper from 2001, claim that in the Middle East and Egypt prior to the first century BCE “these civilizations did not establish any facilities for medical care or treatment” (132). Despite the limited textual evidence, close inspection reveals that practicing doctors kept cots in their places of business for the treatment and recovery of patients, though there were no large facilities that could be termed hospitals.<sup>5</sup> A categorized list of physician’s equipment from Ugarit details a bed and coverlet, among surgical instruments and other medical trappings; the interpreter notes that “seriously afflicted patients were examined and treated in bed, which in this instance was also the operating-table. A coverlet could well be utilized in post-operative recovery.”<sup>6</sup> The personal inventory of this particular medical practitioner demonstrates that treatment and care facilities did exist outside of healing temples, and other texts including law codes further demonstrate that physicians had an established profession.

Besides having offices, beds for patients, and surgical and pharmacological equipment, Mesopotamian doctors had a professional name: *asu* or *azu*, were those who practiced therapeutic medicine, composed of surgical and herbal treatments; the counterpart of the *asu* were the *asipu* or *ashipu*, who practiced divinatory and religious medicine.<sup>7</sup> The text of the Code of Hammurabi (c. 1700 BCE) differentiates religious healers in two classes: diviners, *baru*, who practiced hepatoscopy and made prognoses, and exorcists, *ashipu*, who determined what offense to gods or demons had brought about the disease.<sup>8</sup> Both types of religious healers gave physical examinations to look for telling symptoms and omens, and both will henceforth be referred to as *ashipu*.<sup>9</sup> The *asu* physicians

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<sup>3</sup> Paul Kriwaczek, *Babylon: Mesopotamia and the Birth of Civilization* (New York: Thomas Dunne Books, 2010), 198.

<sup>4</sup> Kriwaczek, *Birth of Civilization*, 198.

<sup>5</sup> Robert R. Stieglitz, “A Physician’s Equipment List from Ugarit,” *Journal of Cuneiform Studies* 33 (1981): 54.

<sup>6</sup> Stieglitz, “Equipment List,” 54.

<sup>7</sup> Allen D. Spiegel and Christopher R. Springer, “Babylonian Medicine, Managed Care and Codex Hammurabi, circa 1700 B.C.,” *Journal of Community Health* 22 (1997): 73-74; Kriwaczek, *Birth of Civilization*, 198; Mujais, “Medicine and Divination,” 134.

<sup>8</sup> Spiegel and Springer, “Codex Hammurabi,” 73; Majno, *The Healing Hand*, 43.

<sup>9</sup> Spiegel and Springer, “Codex Hammurabi,” 73.

were trained in schools associated with temples of the goddess of medicine and healing, Gula, and were educated using a combination of clay tablet textbooks, the equivalent of rounds, and practical experience; *asu* focused more on the patients' accounts of their illnesses than on physical examination like the *ashipu*.<sup>10</sup> *Asu* and *ashipu* were more likely to have worked in peaceful coexistence than to have competed, considering that there are records of the same individuals, including kings, consulting both types of healers.<sup>11</sup> A parallel could be drawn between the coexistence of *asu* and *ashipu* in ancient Mesopotamia and the much later, but similar, relationship between Hippocratic healers and the attendants of the god Asclepius in ancient Greece.<sup>12</sup> The practices of *asu* physicians and their more religious counterparts were so widespread and commonplace that their services and fees were regulated by law: the Code of Hammurabi states that medical fees were on a sliding scale dependent on one's social class (*awelum* were elites, *mushkenum* were commoners, and *wardum* were slaves), that the Babylonian government had the right to inspect a physician's work, and that errors of omission or commission were corporally punishable, among other detailed rules.<sup>13</sup> As evidenced by contemporary texts, the physicians of ancient Mesopotamia were methodically trained, had facilities and tools to treat patients with both pharmaceutical medicine and surgery, and were an integrated and regulated part of society.

Herbal medicine and other pharmaceuticals were ubiquitously used tools of *asu* physicians in ancient Mesopotamia. Some treatments were likely based on empirically discovered characteristics of the ingredients used, while others were less based in effectiveness and more based in the attribution of superstitious or symbolic qualities. A Sumerian cuneiform tablet from c. 3000 BCE details fifteen pharmaceutical prescriptions, though it lacks the context that would be provided by the names of the associated diseases or the amounts of the ingredients.<sup>14</sup> The elements of the treatments are faunal, botanic, and mineral: sodium chloride (salt), potassium nitrate (saltpeter), milk, snakeskin, turtle shell, cassia, myrtle, asafetida, thyme, willow, pear, fig, fir, and date.<sup>15</sup> All parts of plant anatomy were utilized: branches, roots, seeds, bark, sap, and branches.<sup>16</sup> These essential components

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<sup>10</sup> Spiegel and Springer, "Codex Hammurabi," 73-74.

<sup>11</sup> Majno, *The Healing Hand*, 40.

<sup>12</sup> Spyros G. Marketos, "The Parallels Between Asclepian and Hippocratic Medicine on the Island of Kos," *American Journal of Nephrology* 17 (1997): 205.

<sup>13</sup> Spiegel and Springer, "Codex Hammurabi," 70-72.

<sup>14</sup> Frank J. Anderson, *An Illustrated History of the Herbs* (New York: Columbia University Press, 1977) 2; R.R. Inskip, "Health Hazards and Healing in Antiquity," *South African Archaeological Bulletin* 24 (1969): 26.

<sup>15</sup> Inskip, "Health Hazards and Healing in Antiquity," 26.

<sup>16</sup> *Ibid.*

were administered in vehicles of honey, water, beer, wine, and bitumen, as poultices and internal medicine.<sup>17</sup> While this is only one text of few that survived, it offers insight to a more versatile pharmaceutical tradition than might be expected; the few ingredients named on the tablet were recombined into laxatives, detergents, antiseptics, salves, filtrates, and astringents.<sup>18</sup> Opiates were another class of botanical medicine that was utilized by the ancient Mesopotamians: narcotics were derived from *Cannabis sativa* (hemp), *Mandragora spp.* (mandrake), *Lolium temulentum* (darnel), and *Papaver somniferum* (opium).<sup>19</sup> There is evidence that opium poppies were definitely present in Sumeria by 3000 BCE, but they were probably reserved for use by *ashipu* and priests in healing temples, and they were used in conjunction with hemlock as euthanasia.<sup>20</sup> Clearly the pharmacopeia of Mesopotamia was elaborate even in Sumerian times, and the unnamed writer of the prescription tablet knew the correlation between illnesses and prescriptions without having to name the illnesses.

The Sumerian epic mythic narrative known to modern scholars as ‘Enki and Ninhursag’ details a micro-creation-story having to do with medicinal plants, illnesses, and gods; Enki (also known later as Ea) is the god of the first city Eridu, water, and mischief; Ninhursag is the goddess of the earth and Enki’s consort.<sup>21</sup> In the tale, Enki both determines the essence and the destiny of each of eight plants by ingesting them, names the body part that each plant is associated with, and gives birth to the gods that are each associated with a plant and a body part.<sup>22</sup> The mythical eight trifectas of plant, anatomical location, and deity illustrate how pharmaceutical treatments of physical afflictions may have been formulated based on the symbolic attributes of plants, as well as the empirical observation of ameliorative effects. In a list of Babylonian healing rituals, pharmaceutical components such as cress, mint, extract of cedar, and date palm, are used in conjunction with invocations.<sup>23</sup> An example of a Babylonian prescription for an injury to the face illustrates the specificity of ingredients, but not of measures, that is typical of a Mesopotamian pharmaceutical text: “If a man is sick with a blow on the cheek: pound together fir-turpentine, pine-turpentine, tamarisk, daisy, flour of *Inninnu*; mix in milk and beer in a small copper pan; spread on skin, bind on

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<sup>17</sup> Ibid.

<sup>18</sup> Anderson, “History of the Herbals,” 2.

<sup>19</sup> Spiegel and Springer, “Codex Hammurabi,” 74.

<sup>20</sup> Michael J. Brownstein, “A Brief History of Opiates, Opioid Peptides, and Opioid Receptors,” *Proceedings of the National Academy of Sciences* 90 (1993): 5391.

<sup>21</sup> Keith Dickson, “Enki and the Embodied World,” *Journal of the American Oriental Society* 125 (2005): 499-500.

<sup>22</sup> Dickson, “Enki,” 506.

<sup>23</sup> Barbara Böck, “When You Perform the Ritual of ‘Rubbing’: On Medicine and Magic in Ancient Mesopotamia,” *Journal of Near Eastern Studies* 62 (2003): 7-8.

him, and he shall recover.”<sup>24</sup> Spiegel and Springer provide a detailed summary of components of Babylonian remedies, based on inventory tablets from a c. 1000 BCE pharmacy: “More than 250 medicinal plants, 120 mineral substances, and 180 other drugs were used in combination with alcoholic beverages, bouillon, fats, honey, milk in various forms, oils, wax, and parts and products of animals” (1997, 74).<sup>25</sup> The components of an *asu*’s medical preparations were evidently hugely varied and numerous.

Pharmaceutical prescriptions were prepared in an *asu* physician’s place of business, if the previously mentioned list of physician’s equipment from Ugarit is a typical example: the list includes items for the storage, weighing, preparation, and administration of medicines, such as scales, strainers, mixing bowls, and possibly forceps for holding ingredients in heat.<sup>26</sup> The thousands of treatments that could be created by combining available materials was most likely based on both religious reasoning and trial and error; as Majno says of wounds in the course of human history, “...in the long run the better dressings stood out. In this permanent battle between man and bacteria, it is thrilling to watch the birth of the first antiseptics...” such as alcohol, honey, and myrrh (1975, viii). Mesopotamian cuneiform texts of myths, prescriptions, and business inventories combine to create a picture of a *materia medica* that was elaborate and highly specific to the affliction being treated; the sophistication of Mesopotamian pharmaceuticals speaks of a long history (and pre-history) of experimentation with treatment using plant, animal, and mineral remedies.

While surgery was far from what people experience in modern developed nations, surgery in ancient Mesopotamia was more advanced than some scholars, like Herodotus, would give them credit for. The Code of Hammurabi is once again a source of information on medical practices—this time because it details the punishments for surgeries gone awry: bones were set, brands were applied or removed from slaves, and surgeries were performed with bronze lancets on wounds and on the eyes by physicians (Spiegel and Springer 1997, 70-74). Surface sores and snakebites were also treated by physicians and, based on inference from the presence of eunuchs in court records and art, castration was performed as well.<sup>27</sup> Majno is careful to point out that surgical treatments were definitely subject to the laws set down by Hammurabi, but other medical treatments such as prescriptions or healing rituals were never mentioned in the Code. This is a reflection of the Mesopotamian conception of disease causation: if

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<sup>24</sup> Majno, *The Healing Hand*, 38.

<sup>25</sup> Majno, *The Healing Hand*, 48.

<sup>26</sup> Stieglitz, “Equipment List,” 54-55.

<sup>27</sup> Spiegel and Springer, “Codex Hammurabi,” 74; Majno, *The Healing Hand*, 46.

someone became ill with something other than a wound, it was because of divine retaliation for a personal transgression or the fault of supernatural influences, and therefore the bad outcome of a treatment could not be considered the *asu*'s fault (1975, 43). However, wounds had a visible and unmistakably mundane cause, and therefore a physician should be able to treat it with mundane means like a scalpel; if the physician only worsened the wound, it was considered just as blame-worthy as the perpetration of the original injury.<sup>28</sup>

In the treatment of all wounds, there are three critical steps: washing, applying a plaster, and binding the wound.<sup>29</sup> The ancient Mesopotamians understood and practiced at least the first two of these three steps, extrapolating from the same c. 3000 BCE prescription tablet discussed earlier in the context of pharmaceuticals.<sup>30</sup> Eight of the fifteen prescriptions are for the preparation of externally applied plasters, possibly for wounds or sores.<sup>31</sup> One prescription details the washing of “the diseased part” (there is no specific Sumerian word for ‘wound’) with beer and hot water, of which Majno assures the reader, “A Sumerian could scarcely have chosen a better wound-wash, though a kind of liquid soap was already available” (1975, 48). Plasters were rather unsophisticated compared to other elaborate prescriptions, consisting of the application of mineral oil and then river mud to the wound.<sup>32</sup> Sutures, ligatures of ruptured vessels, and cauterization were apparently unknown to the *asu*.<sup>33</sup> However, they did have the technologies of soap-making and distillation, as illustrated by prescriptions that detail the combination of resin or fat with an alkali, which would result in a soapy detergent, and by the presence of ‘essence’ of cedar, which would have been accomplished by distillation.<sup>34</sup> While some aspects of ancient Mesopotamian wound dressing are completely lacking as seen through the lens of modern biomedical practices, such as the binding and closing of wounds, others were surprisingly advanced, such as the washing and the preparation of poultices for wounds. Other texts give detailed instructions for surgery with a scalpel, including post-operative care such as the dressing of operations sites with oil-soaked linen bandages.<sup>35</sup> One scantily described operation is the cutting between the third and fourth ribs, counting from inferior to superior, to relieve pus collection in the pleura or liver.<sup>36</sup> One operation described in the medical text

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<sup>28</sup> Majno, *The Healing Hand*, 43.

<sup>29</sup> Majno, *The Healing Hand*, 46.

<sup>30</sup> Majno, *The Healing Hand*, 46-51.

<sup>31</sup> Majno, *The Healing Hand*, 48.

<sup>32</sup> *Ibid.*

<sup>33</sup> *Ibid.*

<sup>34</sup> Majno, *The Healing Hand*, 50.

<sup>35</sup> Majno, *The Healing Hand*, 52.

<sup>36</sup> *Ibid.*



“Prescriptions for Diseases of the Head” involves operating on an abscess beneath the scalp, and scraping away sick bone if the infection has affected the skull.<sup>37</sup> These surgical texts make it definitively clear that the *asu* were knowledgeable about the third step of wound treatment: bandaging. The interpretation of these three Mesopotamian medical texts elucidates the knowledge of the *asu* of the three critical steps of wound treatment, the theory of causation that differentiates wounds from other illnesses, and the utilization of cutting instruments and pharmaceutical preparations to treat wounds prior to 1000 BCE.

More than a thousand years prior to the lifetime and teachings of Hippocrates (called the father of Western medicine), prior to the description of the acquisition and treatment of wounds in the Iliad, and contemporaneous with the Edwin Smith and Ebers papyri of Egypt, medicine in pre-1000 BCE Mesopotamia was a well-established profession that included diagnosis, pharmaceutical applications, and the proper treatment of wounds.<sup>38</sup> Provided that human anatomy was only known from extrapolation from divinations using animal carcasses, microbiology was a concept of the vastly distant future, and the theoretical punishment for a failed surgery was the loss of one’s hands, medicine and doctoring were remarkably advanced. When one considers the practical approach of *asu* physicians, who operated only based on their text-based educations and personal experience without personally falling back on a perhaps less experimental concept of disease causation such as the later humoral model (at least when it came to justification for treatment), it appears likely that that this type of empiricism-utilizing medical practice had developed alongside religious healing for many centuries before. Inskeep posits that Mesopotamian medicine was much older than the third millennium BCE because of the origin of the word *asu*: “That medicine was old in Babylonia is shown . . . by the fact that the Babylonian word for physician, *asu*, derives from the Sumerian *a-zu* or *ia'-zu*, meaning 'the man who knows water (or oil)'; presumably relating to divination by water with the aid of the water God Ea [Enki]” (1969, 25). Though the profession of the *asu* may have had even more ancient roots in the art of divination, by 3000 BCE there were relatively sophisticated medical alternatives to religious healing, as exemplified by contemporary texts that detail pharmaceutical prescriptions and surgeries.

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<sup>37</sup> Ibid.

<sup>38</sup> Spiegel and Springer, “Codex Hammurabi,” 71-88.

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