

The Symbol of Modern Medicine: Why One Snake Is More Than Two*

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Today, two serpent motifs are commonly used to symbolize the practice and profession of medicine. Internationally, the most popular symbol of medicine is the single serpent-entwined staff of Asklepios (Latin, Aesculapius), the ancient Greco-Roman god of medicine. However, in the United States, the staff of Asklepios (the Asklepiian) and a double serpent-entwined staff with surmounting wings (the caduceus) are both popular medical symbols. The latter symbol is often designated as the “medical caduceus” and is equated with the ancient caduceus, the double serpent-entwined staff of the Greco-Roman god Hermes (Latin, Mercury). Many physicians would be surprised to learn that the medical

caduceus has a quite modern origin: Its design is derived not from the ancient caduceus of Hermes but from the printer’s mark of a popular 19th-century medical publisher. Furthermore, this modern caduceus became a popular medical symbol only after its adoption by the U.S. Army Medical Corps at the beginning of the 20th century. This paper describes the ancient origin of the Asklepiian and how a misunderstanding of ancient mythology and iconography seems to have led to the inappropriate popularization of the modern caduceus as a medical symbol.

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Western culture demands integrity, personal sacrifice, and compassion from its physician healers. This powerful social expectation predates Christianity and has its origins in the heroic and mythologic traditions of ancient Greece. The heroic, and later mythical, figure of Asklepios was a major focus of ancient Greco-Roman medical tradition from perhaps as early as 1200 BC (1,2) until 500 AD (3–14). The mortal hero-physician Asklepios, mentioned in Homer’s *Iliad*, exemplified the ideal Greek physician (2). Later, as Asklepios was deified and worshipped, these traditions of patient care spread throughout Greece and, subsequently, the vast Roman Empire (4–6). Asklepios came to be recognized as the god of medicine and the mythical son of Apollo whose healing power Asklepios had inherited and expanded (3–8). The cult of Asklepios and his family seems to have originated at Trikka in Thessaly; by Roman times, hundreds of ancient temple complexes, called Asklepieions, had been built throughout the Greco-Roman world (6). The Asklepieions of Epidavros, Kos, and Pergamon were particularly extensive and elaborate, resembling a cross between a sanatorium and a modern hospital.

In times of illness, Asklepios was the focus of ancient Greco-Roman supplication, particularly for the poor and disregarded (4). Many early Greek physicians claimed direct descent from the hero-physician Asklepios, proclaiming themselves a family of “Asklepiades.” Hippokrates (circa 460 to 377 BC) proudly claimed descent from Asklepios via Poldaleiros, the skillful physician son of Asklepios (4); indeed, Plato (circa 427 to 347 BC) often referred to Hippokrates as “the Asklepiade” (5). With the spread of the cult of the god Asklepios, the term “Asklepiade” was applied more generically, and Asklepios was seen as the patron of physicians and the guardian of the medical craft. The great physician Galen (circa 129 to 216 AD) began his training as an attendant at the Asklepieion of Pergamon

(15) and in his writings referred to Asklepios as his “ancestral God” (4, 16). The opening lines of the Hippocratic Oath clearly reveal the central role occupied by Asklepios and his mythologic daughters, Hygieia and Panakeia, in the hearts and minds of the ancients: “I swear by Apollo Physician and Asklepios and Hygieia and Panakeia and all the gods and goddesses, making them my witnesses, that I will fulfil according to my ability and judgement this oath and this covenant . . .” (17).

Asklepios was commonly depicted on statues, reliefs, coins, and physician’s rings holding his Asklepiian emblem. Several myths describe how Asklepios chose his symbol (4). In perhaps the most popular tale, Asklepios is examining a man, Glaukos, whom Zeus had recently struck dead with a thunderbolt. During the examination, a snake gliding into the room surprised Asklepios, and he responded by killing it with a blow from his staff. Asklepios was subsequently intrigued by the arrival of a second serpent, which placed certain herbs in the mouth of the dead serpent and thereby restored it to life. Asklepios quickly perceived the lesson, revived Glaukos by recourse to the same herbs, and, as a mark of respect, adopted the serpent coiling about his staff as his emblem (4).

The use of the Asklepiian motif was very popular throughout antiquity. However, from the early Christian era to the Middle Ages, many of the ancient Greco-Roman gods and symbols were suppressed by the Catholic Church, and uroscopy (or “water-casting”) came to play an important role in medical diagnosis (18). Thus, from the 6th century until the Renaissance, the urine flask replaced the Asklepiian as the symbol of the profession (19).

The changes in religious imagination and values that took place after the Reformation in the Protestant countries of northern Europe had direct repercussions on the choice of medical patrons and symbols. As Catholic patron saints of medicine lost favor, they were replaced by the

*In this paper, nomenclature of Greek origin is translated into English such that it more closely transliterates the original Greek spellings. Thus, for example, Asklepios, Hygieia, Hippokrates, and Epidavros are used rather than Aesclepius, Hygeia, Hippocrates, and Epidaurus.

Figure 1. Statues of Asklepios and Hygieia.



Beginning in the 17th century, many western medical schools and hospitals incorporated the representations of Asklepios, Hygieia, and the Asklepians into their symbols and artistic decorations. These statues are prominently displayed at Guys Hospital in London, United Kingdom, opposite the old surgical theater.

rediscovered symbols of antiquity (7). Subsequently, in countries such as England, the Netherlands, Norway, and Sweden, illustrations, art works, and statues of Asklepios began to proliferate; Asklepios was often accompanied by his mythical daughter, Hygieia, the goddess of health (7). Clearly, Asklepios was no longer worshipped as a divinity; however, because of the intense interest in the symbolism, learning, and traditions of the Greco-Roman period, the Asklepians was again recognized and firmly established as the symbol of medicine (Figure 1).

From the beginning of the 17th century, the figure of Asklepios began appearing on medical medals and calling cards. The same pattern seen in antiquity emerged: The symbol was used only in a medical context, whereas the caduceus, although used by some medical organizations, was associated with other fields, especially commerce, communications, chemistry, and pharmacy (7, 13, 19).

THE RECENT ADOPTION OF THE CADUCEUS AS A MEDICAL SYMBOL

In most countries, the Asklepians is firmly established as the symbol of military and civilian medicine (20). Therefore, it is difficult to understand the widespread use of the caduceus in the United States, especially because it is used side by side with the Asklepians motif. For example, the emblem of the U.S. Public Health Service bears the caduceus, whereas the National Library of Medicine and American Medical Association prominently display the Asklepians. Within the military, the badge insignia of the U.S. Army Medical Corps (USAMC) is the caduceus, but its coat of arms, which is that of the U.S. Army Medical Department (USAMEDD) (adopted in 1818), bears the Asklepians (21, 22) (Figure 2).

So why did the caduceus become inappropriately associated with medicine in the minds of North American doctors in the late 19th century? Some have hypothesized that the reason is related to the use of the caduceus motif by

Figure 2. Symbols of the U.S. Army Medical Corps (USAMC).



Top. The golden caduceus collar badge of the USAMC, which was adopted in 1902. Bottom. The regimental insignia of the U.S. Army Medical Department (USAMEDD), which is worn by all personnel in each of its seven corps, including the USAMC. The design of the shield, with its 20 stars, 13 stripes, and green Asklepians, is derived from the original coat of arms adopted by the USAMEDD in 1818 (21, 22). The shield motif also remains central to the modern regimental coat of arms and flag of the USAMEDD (see USAMEDD regimental symbols and history at <https://www.perscom.army.mil/tagd/tioh/Branches/Army%20Medical%20Department.htm> and <http://ameddregiment.amedd.army.mil/flag.htm>). Reproduced with permission of the USAMEDD and the U.S. Army Institute of Heraldry.

some European publishing houses. In particular, John Churchill of London, the prolific medical publisher, used a caduceus printer's mark on the title page of many of the medical and scientific books he exported to the United States (13). The mark may have symbolized Churchill's desire to unite medicine and literature because it consisted of two serpents labeled "medicina" and "literis" and a motto "Irrupta Tenet Copula" (unbreakable bond unites) (23). Nevertheless, John Churchill clearly saw the caduceus as his printer's mark and not the symbol of medicine because several of his medical books also included prominent representations of the Asklepian (13). In the United States, however, an erroneous mental connection between Churchill's caduceus and medical practice seems to have developed. By the late 19th century, several United States-based publishing houses, assuming that the caduceus was a symbol of medicine, had copied or adapted Churchill's caduceus printer's mark and were prominently displaying it in their medical books (13). Apparently, this misunderstanding was sufficiently widespread in the medical community in the United States to have stimulated the publication of papers condemning the adoption of the caduceus and the neglect of the Asklepian (24, 25).

The important question to ask is how did the caduceus become popular so quickly in the United States. The role of the USAMC is crucial. In 1902, at the suggestion of an assistant surgeon, Captain Frederick Reynolds, a new uniform code was established, and the caduceus became a collar insignia for all personnel in the USAMC. From Captain Reynold's correspondence with the Surgeon General's office, it is apparent that he was unaware of the distinction between the caduceus and Asklepian when he recommended the combined use of the "cock of Aesculapius" and the caduceus. His statement to the Surgeon General that the Medical Corps of "several foreign powers, notably the English" all displayed the caduceus was also erroneous. In fact, no other western medical military service of that time displayed the caduceus; they all used either the Asklepian or symbols based on the Christian cross (13).

Thus, the adoption of the caduceus by the USAMEDD seems to have been simply a misunderstanding of classical mythologic iconography. Ironically, this mistake was almost avoided. In March 1902, when Captain Reynolds initially suggested the switch to the caduceus symbol, the Surgeon General, G.W. Sternberg, dismissed his request outright. However, Captain Reynolds was persistent and, later that year, he sent a second letter to the new Surgeon General, W.H. Forwood; this time, his proposal was approved. Thus, on 17 July 1902, the "caduceus of gold" was adopted as the branch insignia of the USAMC (13, 26). This faux pas did not go entirely unnoticed in the United States (21, 27, 28). In 1917, Lieutenant Colonel McCulloch, the librarian to the Surgeon General, discovered original documents showing that the coat of arms adopted by the USAMEDD a century earlier had displayed the Asklepian and not the caduceus. McCulloch lamented: "I

Figure 3. Mercury about to take off to fly around the world.



With a full purse and winged caduceus, Mercury flies around the world, leaving behind his companion, Fortuna, the goddess of good luck (34).

think that in this country we pay too little attention to the historical and humanistic side of things. . . . The caduceus or wand of Mercury now used on the collar of the uniform blouse . . . of the medical corps, has really no medical bearing whatever. . . . It really should be replaced as a corps design by the Aesculapian staff and serpent" (21).

WHY THE CADUCEUS IS AN INAPPROPRIATE MEDICAL SYMBOL

"It is in and through symbols that man, consciously or unconsciously, lives, works and has his being" (29). Symbols have power because of their associations and traditions. It is precisely for this reason that the symbol of the "blameless physician" Asklepios (2), and not the caduceus of Hermes (Latin, Mercury), is an appropriate emblem for the ideals of modern medicine. It is easy to appreciate the inaptness of the caduceus as a medical symbol, given an understanding of the role and attributes assigned to Hermes in ancient mythology.

Hermes, the mythical son of Maia and Zeus, was an amazingly precocious and entirely unethical child (30, 31). Born at dawn, Hermes had already incurred the wrath of his stepbrother, Apollo, by that same evening by stealing Apollo's prized cattle and hiding them in a cave. He then sacrificed two of the cattle and a tortoise whose shell he strung with cords made from the cattle, thus inventing the lyre (30, 31). Apollo, having discovered the circumstances of the theft by divination, went to Maia to accuse Hermes. Maia could only show him her "innocent" child Hermes still in his cradle.

When the furious Apollo took the child to Zeus in order to claim back his cattle, ironically, his anger was quenched by his enchantment with the music of the lyre, and he gave Hermes the cattle in exchange for the musical instrument. Continuing in his inventive ways, Hermes also made a shepherd's pipe; its music so amazed Apollo that he

Figure 4. Hermes Psychopompos, god of ghosts and the underworld.



This drawing on an ancient vase shows Hermes with the magic rhabdos (rod) and a wingless kerykeion (caduceus) summoning the souls of the dead from the great grave pitios (36).

desired it too. Apollo then exchanged the golden wand that he used to herd cattle for Hermes' pipe. The golden herald's wand, the kerykeion (Latin, caduceus), was described by Apollo as "the wondrous staff of abundance and wealth which is not subject to death and will protect thee" (19, 30).

Hermes was the swift messenger of Zeus and the herald of the gods, but he also had a mythologic role as a peacemaker. According to legend, Hermes separated two fighting serpents by driving his wand into the ground between them; the serpents then entwined themselves around the staff in friendship to form the caduceus motif (31). Hermes was recognized as the peacemaker between Priam and Achilles, and, by Imperial Roman times, the role of the caduceus of Hermes was firmly established (19). The Roman legions used an object that resembled a caduceus to identify the presence of noncombatants on the battlefield and ongoing negotiations. It consisted of an olive branch wrapped with white linen ribbons and was held in the air by an officer called the caduceator (32).

Wings, analogous to the winged traveling hat and sandals of Hermes, were not added to depictions of the caduceus until approximately 250 BC (33) and remained uncommon until 100 AD (13). The Greco-Roman caduceus usually had only one or two coils, and the wings, when present, were located below the coiling serpents. The modern caduceus adopted by the USAMC and now popular throughout North America consists of two serpents entwined six or seven times around a staff surmounted by a set of wings. This caduceus only superficially resembles the ancient caduceus of Hermes because Captain Reynolds

based his design on various 19th-century printer's marks and not the caduceus of antiquity (13).

Although Hermes was almost always a benevolent figure toward mortals, he was certainly very active in several areas that are at odds with the practice of medicine. Hermes was the patron god of thieves, merchants, and travelers; the conveyor of dreams; and the god of games, luck, and commerce (30, 34). He also came to be regarded as the governor of the tongue and the guide of intelligent and cunning speech. At his best, Hermes was overly shrewd; at his worst, he was an ingenious deceiver (19, 30). Mercury, his Roman counterpart, became even more identified with commercial pursuits and was commonly depicted carrying a purse bulging with coins (Figure 3). In Homer's "Hymn to Hermes," Apollo is scathing in his assessment of Hermes: "This among the Gods shall be your gift. . . . To be considered as the Lord of those who swindle, housebreak, sheepsteal and shoplift. A schemer subtle beyond all belief" (35).

Undoubtedly, Hermes was an unethical and excessively venal character, but perhaps his most disturbing role was that of Hermes Psychopompos, the guide of souls along the pathways to the underworld (36) (Figure 4). Surely this alone makes the caduceus a very inappropriate symbol for most physicians, with the possible exception of palliative care specialists.

CONCLUSION

The Asklepiian is a medical symbol with a heritage stretching well over two millennia. In contrast, the modern caduceus became a popular medical symbol only in the early years of the 20th century. We suspect that some of the popularity of the caduceus is based on the ease with which the nomenclature is recalled. Indeed, the Asklepiian is often incorrectly called the "caduceus of Aesculapius" (37). The more accurate "serpent and staff of Asklepios" is verbose and clumsy, especially given the confusion surrounding which of the Greek or Latin forms of Asklepios, Asclepius, Aesculapius, and other terms should be used. With this in mind, we have introduced here the concise term "Asklepiian" to describe the single serpent-entwined staff of Asklepios; we hope this will increase the recognition and use of this ancient symbol of medicine by both medical and lay communities.

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