

BRANDEIS UNIVERSITY

# Roman Doctors

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## From Charlatans to Wonder-Workers

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## Introduction

This thesis explores the course of Roman medicine from its birth through its development into a professional practice through the military. First, this thesis examines the earliest stages of Roman medicine and how it influenced Romans' views of medicine. It then investigates Roman society's view of doctors during the second century CE through the writing of Galen, a renowned practitioner of medicine from Pergamum. The final chapter explores how the Roman military provided Roman medicine the avenue through which it grew and thrived throughout the Roman Empire. While many have examined these three components separately, none have ever combined them in order to explain the sentiments Romans had towards doctors and how Roman medicine has overcome them.

In order to understand the history of Roman medicine and its social standing within Roman society, we go back to the ancient Egyptians, their advanced medical practices, and how these influenced the three distinct "styles" of Greek medicine: *Homeric medicine*, *religious medicine*, and *empirical medicine*. In contrast, Romans of the time distrusted doctors and focused on folk-medicine. We can understand Roman society's sentiment towards Greek medicine and doctors by first examining the growth of ancient Mediterranean medicine.

Having explored the development of early Roman medicine, we can investigate the Romans' perceptions of doctors and the growing medical field. We focus on Galen, an expert in Roman medicine who published numerous works in this field. The particular work examined within this thesis, *De Optimo Medico Congoscendo*, provided wealthy Romans with a guideline on how to select a good physician. *De Optimo Medico Congoscendo* perfectly illustrates how Galen and Roman society viewed doctors within Rome during the second century CE. The work

clearly describes the key qualities of a good doctor, such as knowledge of the *Hippocratic Corpus* and various medical theories.<sup>1</sup>

Lastly, I examine the role of the Roman military in the development of Roman medicine. This chapter delves into the requirements of a professional medical corps and how the Roman military met these various specifications in order to provide medical services to soldiers.

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<sup>1</sup> Will be examined in later chapters

## Chapter 1: Birth of Roman Medicine

The Ancient Mediterranean was an interconnected world with trading of material goods, ideas, and beliefs. Medicine flourished through these connections and was consequently transferred among peoples and eras. The Romans obtained much of their medicine from the Greeks, who were influenced by the Egyptians and their pharmacology.<sup>2</sup> Thus, to understand Roman medicine, we must travel through ancient Mediterranean history and examine the transferring of medical practices among Egyptians, Greeks, and early Romans.

### *Egyptian Medicine*

The Egyptians had some of the most impressive medical breakthroughs early in Mediterranean history. Starting before 2600 BCE Egyptians had semi-professional medical practices and, until the fourth century BCE, were considered some of the best doctors in the ancient world. For example, Egyptian doctors were Persian court doctors for centuries. Homer also talks of Egypt as the land "where the fruitful soil yields drugs of every kind, some that when mixed are healing...there every one is a physician, skilful beyond all humankind..."<sup>3</sup> Through reading Egyptian papyri, we can see just how advanced Egyptian medicine was for its time in both surgical and pharmacological skills.

Starting as early as possibly 2600 BCE, medical texts were written on papyrus and sold by the Egyptian temples to physicians. The Smith papyrus, dated around 1600 BC and found in Thebes, is a scribe's copy of a text that was first written between 2600 and 2200 BCE.<sup>4</sup> The Smith papyrus is a complete manual with examination, diagnosis, and treatment plans for forty-eight different surgery cases.<sup>5</sup> Numerous symptoms are noted in the papyrus, such as paralysis

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<sup>2</sup> James Peter Warbasse, *The Doctor and The Public* (York: Maple Press Co, 1935), 50.

<sup>3</sup> Homer, *Odyssey* trans. George Herbert Palmer (Boston: Houghton, Mifflin and Company, 1895), 133.

<sup>4</sup> Warbasse, *The Doctor and the Public*, 44; Richard A. Gabriel and Karen S. Metz, *A History of Military Medicine: From Ancient Times to the Middle Ages* (New York: Green Wood Press, 1992), 74.

<sup>5</sup> Gabriel and Metz, *A History of Military Medicine*, 74.

in limbs following a vertebrae dislocation, the fracture of the temporal bone resulting in deafness, and the feeble pulse and fever observed in patients with mortal head wounds.<sup>6</sup> The Smith papyrus shows the advanced medical Egyptian knowledge at this time, such as fevers being an indicator of illness and the concept of a pulse; medical knowledge that takes Greek medicine centuries to incorporate.

Through the use of papyri like the Smith papyrus, Egypt standardized their medical practitioners. The standardization was successful because the Egyptians sold medical papyri through temples to doctors. Standardizing medicine allowed Egyptian doctors to be "certified" by these temples, creating a semi-professional medical sector. While standardization meant patients received uniform care, it limited the growth of medical knowledge because doctors could not explore other medical procedures. If a patient died while the doctor followed the papyri for the deceased's treatment the doctor was not held responsible for the death. If, however, the patient died while the doctor was trying something outside of the prescribed teachings, the doctor would be put to death.<sup>7</sup> The threat of death meant Egyptian doctors were less likely to explore medical options, stunting further growth of Egyptian medicine.

The Egyptian medical professionalism translated to high levels of medical skills, despite the stagnation of Egyptian medicine. Egyptians were the first in the Mediterranean world to use adhesive bandages to bandage infected wounds.<sup>8</sup> This bandage worked by taking strips of linen cloth or woven papyrus and using the resin from the gum of the acacia tree as adhesive.<sup>9</sup> The use of adhesive bandages allowed Egyptians to bandage infected wounds loosely. This style of dressing wounds, which was debated by the Greeks centuries later, allowed pus and foreign

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<sup>6</sup>Ralph Jackson, *Doctors and Diseases in the Roman Empire* (Norman: University of Oklahoma Press, 1988), 14.

<sup>7</sup>Gabriel and Metz, *A History of Military Medicine*, 74.

<sup>8</sup>Ibid., 79.

<sup>9</sup>Gabriel and Metz, *A History of Military Medicine*, 79.

objects to be released from the wound. Loose bandaging also decreased the risk of infection, increasing the effectiveness and survival rate of Egyptian medicine.

Evidence that splints were used to set fractures effectively with palm fiber splints comes from mummies and papyri. A possible explanation as to why the Egyptians developed splints so early on is due to Egyptian warfare. As Gabriel and Metz point out, Egyptian fractures are most prevalent in the wrist and arm, locations that were often broken when trying to ward off enemy blows.<sup>10</sup> By treating these military wounds, Egyptian doctors developed splints to treat fractures. This real-life military experience was transferred to the average civilian doctor through the medical papyri sold by the temples.

Physicians specializing within specific areas of medicine were another facet of Egyptian medicine. Much like today, most Egyptian doctors specialized in specific body parts such as the eyes, head, or teeth. According to Herodotus, "the art of medicine (in Egypt) is thus divided among them: each physician applies himself to one disease only, and not more. All places abound in physicians; some physicians are for the eyes, others for the head, others for the teeth, others for the intestines, and others for internal disorder."<sup>11</sup> Herodotus notes that by Egyptian doctors specializing in a specific field, such as eyes, certain illnesses could be treated more effectively by certain doctors.

As a result of Egyptian medicine becoming more mystical in the sixth and fifth centuries BCE, Egyptian medicine is not as well known as Greek medicine, which was concurrently developing an empirical medicine. The mystical component of Egyptian medicine arose with the influence of Egyptian priests significantly growing over the sixth and fifth centuries. Since the

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<sup>10</sup> Gabriel and Metz, *A History of Military Medicine*, 42.

<sup>11</sup> *Ibid.*, 70.



sale of medical papyri was controlled by the temples, they could directly influence Egyptian medical practices. While the structure of selling these medical papyri through temples did standardize Egyptian medicine, it also inhibited further progress within the medical field. Doctors could not perform experimental operations, causing the stagnation of Egyptian medicine. Although they had great skill with fractures, closing wounds, and creating drugs, Egyptian medical theories had a mystical and religious basis, whereas Greeks had begun to develop empirical medicine that was not limited by religion.

### *Greek Homeric Medicine*

I have divided ancient Greek medicine into three intertwined "styles" known as *Homeric medicine*, *Religious medicine*, and *Empirical medicine*. *Homeric medicine* is medical knowledge gained by reading and understanding Homer's *Iliad* and *Odyssey*. While the *Iliad* and the *Odyssey* are not necessarily "historic", they provide a glimpse into ancient Greek society. The medical knowledge gained from these folk works not only indicates doctors' social status, but also their social role and ancient Greece's medical knowledge.

Homer's writings show a sound anatomical knowledge and understanding of wounds and how they were treated through the descriptions of these injuries. Many of Homer's heroes have some medical background. Homer mentions Asclepius in the *Iliad* and, while he was not present, his sons Machaon and Podalirius went to the Trojan War and were mentioned to be 'good physicians both'.<sup>12</sup> This illustrates Homeric heroes knew about medicine, and while good physicians were valued, they were soldiers first.

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<sup>12</sup> Gabriel and Metz, *A History of Military Medicine*, 142.

That being said, in Homer's *Odyssey*, he places doctors along with seers, armourers, and bards as "servants of mankind at large" and classifies doctors as craftsmen.<sup>13</sup> He goes on to say that their country "knows no bounds" and doctors travel to where their services are required.<sup>14</sup> Thus doctors, in this "ideal world", were expected to put the needs of the people first and traveled to accommodate such needs.

These doctors were most likely concentrated within the ancient Greek army. Those in the army needed wounds stitched, arrows removed, or broken bones set. In fact, the old Ionian word for physician, *iatros*, means "extractor of arrows", tying the medical profession with these early tasks.<sup>15</sup> In *Homeric medicine*, doctors were used mainly for treating wounds inflicted by humans. Medicine did not extend to treating of diseases and illness, something that was only controlled by the gods, which was the domain of the priest.

*Homeric medicine* believed that disease was sent by the gods and could only be cured by visiting a priest. In the *Iliad*, the Greeks had a plague set upon them by Apollo while they laid siege to Troy. Homer writes of Apollo's arrows striking Greek men and beasts with "evil illness" because they refused to return a priest's, Chryses, daughter.<sup>16</sup> Apollo set this plague upon the Greeks because of Chryses' prayers to punish the Greeks. Apollo did not lift the disease until the Greeks completed what he asked of them. This exemplifies how the Greeks felt that disease was something that doctors could not treat, but was only treatable by appeasing gods. The influence of gods among illnesses and medicine can be seen within both Greek and Roman medicine.

Another example of the power of the gods comes from the play *Ajax* by Sophocles, written in the fifth century BCE. This play shows that the Greeks recognized posttraumatic

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<sup>13</sup> Homer, *Odyssey* trans. George Herbert Palmer, Book 17 L. 383-6.

<sup>14</sup> Ibid.

<sup>15</sup> Gabriel and Metz, *A History of Military Medicine*, 142.

<sup>16</sup> Vivian Nutton, *Ancient Medicine* (New York City, Routledge, 2004), 38.

stress disorder (PTSD) and its adverse affect on a soldier's physical well-being. *Ajax* focuses on Ajax's suicide, which arose when Odysseus was given Achilles' armor instead of Ajax. The story goes that Ajax, mad with rage, had decided to kill the Greeks and Odysseus, but Athena instead tricked him into killing all the cattle.<sup>17</sup> When Odysseus witnesses Ajax believing the cattle to be Greeks, he remarks,

He suffers from a dreadful sickness.  
Obsessed by it. And, of course,  
Fate might deliver this sickness to me one day as well.  
Life is but an illusion, it seems,  
A fleeting shadow.<sup>18</sup>

The Greeks understood this "dreadful sickness", madness, was something common among soldiers and was inflicted by the gods upon men. Greeks also realized that soldiers were becoming physically ill and dangerous to others because of this mental disease, just like Ajax. Both Herodotus and Xenophon, noted ancient Greek historians, documented instances of PTSD after battles.<sup>19</sup>

### *Greek Religious Medicine*

The analysis within *Homeric medicine* shows a strong connection between medicine and religion. Men became diseased because of the gods and only the gods could cure disease. Again, we look back to the scene where Apollo struck the entire Greek army with a disease in order to punish them for refusing a priest in book 1 of the *Iliad*. The gods were responsible for sickness and, if the gods were the creators of disease, they could also be the healers. Consequently, priests became the primary medical providers to many Greeks seeking guidance and divine help in curing illness.

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<sup>17</sup> Sophocles *Ajax*, trans. G. Theodoridis, (Poetry in Motion, 2009).

<sup>18</sup> *Ibid.*, L.122-126.

<sup>19</sup> Gabriel and Metz, *A History Military Medicine*, 151.

By the fifth century, religious medicine became extremely popular within the cult of Asclepius. Asclepius, who Homer considered a hero, was a man famous for his skill at curing any illness. Asclepius was equal parts miracle worker and doctor, and people traveled great distances seeking out his medical prowess. According to Pindar's 3rd Pythian Ode, Asclepius was Apollo's son and Chiron, the same centaur that taught Achilles, taught Asclepius the art of medicine.<sup>20</sup> Thus, with this knowledge of medicine and his skills, Asclepius brought a man back from the dead. Zeus, witnessing this miracle, struck down Asclepius for intervening with the natural order of man.

The cult of Asclepius focused on his medical prowess and adopted his teaching to create a religious medicine within Asclepius's temples. These shrines, known as Asclepeions, were holy centers where Asclepius was most powerful. Here, patients could visit priests and sleep in the temples, in the hopes that Asclepius could visit them in their dreams and tell them the proper steps to heal themselves.<sup>21</sup> The priests would help guide these patients along their route to recovery. Some services these priests provided included interpreting dreams, prescribing a regimen, and general oversight of patients.

These Asclepeions were most famous in Cos, Pergamum, and Epidaurus. Galen, among other medical writers, often referred to them. The Asclepeions all functioned similarly and followed similar procedures for accepting new patients. Upon arrival, patients were washed and taken to the *abaton*, a sacred dormitory next to the temple.<sup>22</sup> Patients would sleep in the *abaton* and hope Asclepius would come to them in their dreams. These dreams could take many different forms, some being the cure themselves while others provided instructions on how to

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<sup>20</sup> Jackson, *Doctors and Disease*, 140.

<sup>21</sup> *Ibid.*, 145.

<sup>22</sup> Jackson, *Doctors and Disease*, 145; Nutton, *Ancient Medicine*, 109.

become healthy. These dreams could be cryptic, however, requiring priests to interpret them and prescribe the remedy. These remedies were normally in the form of drugs or a regimen of diet, bathing and exercise to the patient.<sup>23</sup> In addition to these dreams, since both snakes and dogs were seen as sacred in the Asclepeions, if either animal licked an ill person, the lick could cure the affected area.<sup>24</sup> Consequently, snakes were often within Asclepeions, and an abundance of snakes made Epidaurus one of the most famous Asclepeions.

The building programs in Epidaurus were particularly impressive, creating monumental buildings and their famous theater.<sup>25</sup> This theater was built by Polykleitos the Younger in the 4th century BC into the hillside. The theater's fame does not come from its size, although it can seat 15,000 people, but for its amazing acoustics.<sup>26</sup> This theater was built to honor Asclepius and was the location of the games to honor him every four years. The main form of entertainment to those visiting the Asclepeion was plays at the theater.<sup>27</sup> Many Greeks probably used these Asclepeions as their main medical resource, which is the reason such extensive building was done at these Asclepeions. The wealthy wanted to be associated with the healing abilities of the Asclepeions so they provided the funds for expansion. This desire for publicity can still be seen hundreds of years later, evident by the fact we know who built the theater in the first place.

Another unique and extremely useful custom of the Asclepeion was not to charge their patients for medical services, but instead to encourage them to leave a plaque honoring the god for his healing powers.<sup>28</sup> These plaques held casts of human body parts with inscriptions professing love and respect to Asclepius for healing their various diseases. Some of these

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<sup>23</sup> Jackson, *Doctors and Disease*, 145.

<sup>24</sup> Ibid.

<sup>25</sup> Figure 1

<sup>26</sup> Jackson, *Doctors and Disease*, 149.

<sup>27</sup> Ibid.

<sup>28</sup> Nutton, *Ancient Medicine*, 108.

plaques are particularly informative and miraculous, like those found in the Epidaurian Asclepeion. One such plaque found in the Epidaurion Asclepion stated, "Hermodicus of Lampsacus was paralyzed in body. This one, when he slept in the Temple, the god healed and he ordered him upon coming out to bring to the Temple as large a stone as he could. The man brought the stone which now lies before the *abaton*."<sup>29</sup> This plaque is one of many found at Epidaurus that illustrate the god's power. Leaving plaques was a custom that would be followed for centuries to come and provide future priests and doctors with examples professing the skills of Asclepius.

### *Greek Empirical Medicine*

Just as the Asclepius cult was gaining power in the fifth and fourth century BCE, empirical Greek medicine was becoming a widespread and popular subject amongst the greatest minds of the time. Greek classical thinking separated medicine from mysticism by following the idea that "it was possible to understand the world through the rational applications of reason and empirical evidence."<sup>30</sup> This desire for logical explanations drove many Greek thinkers to examine how the human body worked and how disease affected it, thus no longer attributing diseases to the gods.

Alcmaeon was one of the first to try and understand how humans became ill, not accepting that gods created disease. Alcmaeon postulated the theory that health is a harmony of bodily powers and its constituent fluids.<sup>31</sup> "Good health was an equilibrium of these fluids,

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<sup>29</sup> Jackson, *Doctors and Disease*, 146.

<sup>30</sup> Gabriel and Metz, *A History of Military Medicine*, 143.

<sup>31</sup> Jackson, *Doctors and Disease*, 17.

while illness and disease occurred when the dominance of one caused an imbalance."<sup>32</sup> This idea of keeping a balance within the human body is seen in future theories as well.

Another Greek, Empedocles, postulated that humans, along with everything else in the universe, were comprised of four elements: fire, air, water, and earth.<sup>33</sup> This theory suggested that each element was related to a specific feeling: hot, cold, wet, and dry. The balance of these four elements determined a person's health. Empedocles's theories are then connected to Alcmaeon's theories in order to formulate future theories, such as that of the four humours.

A counter theory to a balance of fluids was Anaxagoras' theory. This theory hypothesized that the universe was composed of microscopic "seeds" that were invisible to the naked eye.<sup>34</sup> Anaxagoras explained how humans consumed other organisms in order to grow. The theory stated that, since everything was made of seeds, by consuming something—also composed of seeds—a human could replenish the seeds within his own body and grow. Anaxagoras' theory is extremely important to the works of later philosophers, particularly Democritus and Leucippus, who formulated the original atomic theory. Atomic theory was possible by taking Anaxagoras' seed theory and changing the seeds into what Democritus and Leucippus called atoms.

With all these different theories on how the human body functioned, Greek medicine emerged from religious ritual and transitioned into rational philosophy. The theoretical work done within medicine, while paramount in understanding how the human body operated, did not translate directly to a physical science. The development of medicine as a physical science began

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<sup>32</sup> Ibid.

<sup>33</sup> Jackson, *Doctors and Disease*, 18.

<sup>34</sup> Ibid.

to occur with Hippocrates, perhaps the most famous ancient doctor, writing the *Hippocratic Corpus*.

Celsus, a Roman doctor from the first century CE, attributed to Hippocrates this key shift in medicine. He writes in his *De Medicina*, “at first the science of healing was held to be part of philosophy, so that treatment of disease and contemplation of the nature of things began through the same authorities...Hence we find that many who professed philosophy became expert on medicine...But it was Hippocrates of Cos, a man first and foremost worthy to be remembered, notable both for professional skill and for eloquence, who separated this branch of learning from the study of philosophy.”<sup>35</sup> Many in the Greek and Roman medical community held Hippocrates in high regard, including Galen and Celsus. The *Hippocratic Corpus* made Greek medicine a practiced skill, no longer just a topic of discussion by philosophers.

Hippocrates came from Cos during the fifth-century BCE. Cos was one of the three major medical centers during Galen’s time and where the claimed descendents from Asclepius lived.<sup>36</sup> Hippocrates hailed from this Asclepaid family, and he was famous for his technique and skill at setting fractures, traction, bandaging, amputation, and trephination.<sup>37</sup> Traction is the process of straightening broken bones or relieving pressure in the spine, while trephination is making a hole within the cranium to expose the *dura mater* around the brain to treat intracranial illnesses. These two techniques show Hippocrates's skill in physical medicine, while the *Hippocratic Corpus* showed his skill in philosophy.

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<sup>35</sup> Jackson, *Doctors and Disease*, 19.

<sup>36</sup> Nutton, *Ancient Medicine*, 55; Jackson, *Doctors and Disease*, 21.

<sup>37</sup> Jackson, *Doctors and Disease*, 24.



The *Hippocratic Corpus* is comprised of sixty-odd works that were written in the Ionic dialect of Greek between 420 and 350 BCE.<sup>38</sup> No ancient manuscript exists of the complete *Hippocratic Corpus* and the only complete form of the work is from 1526, printed by the Aldine Press in Venice.<sup>39</sup> The debate around whether Hippocrates wrote the entire Hippocratic Corpus has been a direct result of the lack of an ancient manuscript. Scholars contest that, while some treaties are similar in style and logic within the *Hippocratic Corpus*, some outlier books in the *Hippocratic Corpus* exist that are written in a different style and with different logic.<sup>40</sup> Galen himself wrote a series of works that focused on the “true” Hippocratic books that are within the Hippocratic Corpus.<sup>41</sup>

A possible explanation for the discrepancy within the *Hippocratic Corpus* is that the Library of Alexandria compiled the Corpus while Cos was under Ptolemaic rule. The Library of Alexandria most likely copied Cos's library, which may have contained many of Hippocrates's works. Instead of having many separate works by Hippocrates, the Library could have compiled them into the original *Hippocratic Corpus*. The Library added subsequent works to the original books of the *Hippocratic Corpus* because of the subject matter of these probably unauthored works.<sup>42</sup> Despite these discrepancies, the theory of the four humours exists throughout the Hippocratic Corpus. The theory of the four humours was accepted as the primary explanation for illnesses for centuries, until modern-day medicine. The four humours were blood, phlegm, yellow bile, and black bile. According to Jackson, phlegm was mucus especially from the nose,

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<sup>38</sup> Nutton, *Ancient Medicine*, 60.

<sup>39</sup> *Ibid.*

<sup>40</sup> Nutton, *Ancient Medicine*, 60.

<sup>41</sup> *Ibid.*, 219.

<sup>42</sup> *Ibid.*, 61.

yellow bile was bile, and black bile was excreted or vomited blood from internal hemorrhage.<sup>43</sup>

Imbalance created illness and a doctor's responsibility consisted of reinstating balance within the patient. Some techniques that were employed by doctors were bloodletting, suction cups, or sweating.

In addition to promoting the theory of the four humours, the *Hippocratic Corpus* defended medicine and provided a set of guidelines for doctors, among other medical practices. In one book, *Sacred Medicine*, the writer denounces the idea that a person was cured by the gods after a doctor has given them medicine and treatment.<sup>44</sup> Instead, the author contested that gods do not bring illnesses and diseases. While gods can cure individuals, once a doctor has performed his expertise, credit goes to the doctor, not the gods. The importance of this distinction provided doctors with the proper recognition and validation of their skills. Medicine further distanced itself from religion and validated the empirical side of medicine because of this validation. If commoners continued to see medicine directly tied to religion, they would seek out priests instead of doctors for their medical needs.

The most famous book of the Hippocratic Corpus, the *Oath*, provides doctors with guidelines for how to be the ideal doctor and the responsibilities that doctors have to their patients. For example, a doctor must act with the best of his ability 'to heal, or, at any rate, not to harm' patients and practice doctor-patient confidentiality.<sup>45</sup> These guidelines are still followed even in today's medicine and, in ancient Greece, further validated doctors. In Greece, the *Corpus* brought legitimacy to the medical profession by providing guidelines and creating a Greek medical textbook. The *Corpus* further divided medicine from philosophy and religion, while

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<sup>43</sup> Jackson, *Doctors and Disease*, 22.

<sup>44</sup> Nutton, *Ancient Medicine*, 65.

<sup>45</sup> *Ibid.*, 66.

allowing the three to complement each other. The *Corpus* also created the platform which allowed for the growth of Greek medicine empirically.

### *Early Medicine on Italian Peninsula*

While all this was going on in Ancient Greece, the Italian peninsula was home to Etruscans and early Romans, in addition to Greeks and Italic tribes. The Etruscans exhibited anatomical understanding and even some forms of dentistry.<sup>46</sup> Skeletal remains show these dental skills, while Etruscan artifacts show the connection between Etruscan religion and its medicine. The Liver of Piacenza, a famous artifact that is an accurate copy of a sheep's liver, shows that Etruscans were opening up animals for haruspicy, a practice that connected the gods to the internal organs of animals.<sup>47</sup> Some believe this artifact was also used for city planning, using certain criteria to layout roads and buildings. The Liver of Piacenza indicates that the Etruscans had some anatomical understanding of animal, since the artifact is anatomically correct, regardless of its use within Etruscan life.

While evidence suggests a medical knowledge to the Etruscans, such as dentistry, the Romans had no empirical medical practices of their own. Pliny explains this phenomenon by writing "it was not medicine itself that the forefathers condemned, but medicine as a profession...chiefly because they refused to pay fees to profiteers in order to save their own lives."<sup>48</sup> Instead, Romans focused on administering their own forms of folk medicine.<sup>49</sup> This meant many Romans relied heavily on home remedies. In 292 BCE a plague struck Rome. The Roman elders consulted the Sibylline Books, a collection of oracular utterances, in order to find

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<sup>46</sup> Jackson, *Doctors and Disease*, 11.

<sup>47</sup> Figure 2

<sup>48</sup> Pliny, *Natural History*, trans. W.H.S. Jones, (Cambridge: Harvard University Press, 1963), 193.

<sup>49</sup> Jackson, *Doctors and Disease*, 11.

a cure.<sup>50</sup> The elders decided to ask the Greeks, with their medicine and religious practices, to help.<sup>51</sup> The Greeks brought a sacred snake from Epidaurus into Rome to establish a new temple to the god Asclepius on the Tiber Island.<sup>52</sup> Roman background in folk medicine and its inability to treat illnesses effectively in the growing metropolis of Rome provided Greek medicine the opportunity to become an integral part of Roman culture. Of course, the rise of Greek medicine in Rome eventually lead to Roman medicine and Galen, one of the most esteemed doctors in Roman medicine.

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<sup>50</sup> Guido Majno, *The Healing Hand Man and Wound in the Ancient World*, (Cambridge: Harvard University Press, 1975), 339.

<sup>51</sup> Jackson, *Doctors and Disease*, 143.

<sup>52</sup> Majno, *The Healing Hand*, 339.

## Chapter 2: Galen's Recipe for the Professional Roman Doctor

Galen, the Hippocrates of Roman medicine, made a significant contribution through his teachings and writings towards moving medicine forward as a profession. Unlike those of Hippocrates, many of Galen's works still exist as original or ancient transcripts, some even significantly older than the Venetian printing of the *Hippocratic Corpus*. Fortunately, we have much more autobiographic information on Galen than Hippocrates that allows us to follow his career as one of Rome's greatest physicians and provides modern-day classicists such as Vivian Nutton concrete evidence of Galen's work and existence. With twenty-one volumes still in existence, Galen's individual writings are longer in content than the entire *Hippocratic Corpus*.<sup>53</sup> One particular work written by Galen that will be explored is *De Optimo Medico Cognoscendo*, or *On Examinations by Which the Best Physicians Are Recognized*, which was written around 177CE. Galen wrote *De Optimo Medico Cognoscendo* to provide Romans a way to analyze doctors, but also on how a doctor can become the best physician.<sup>54</sup> To understand Galen's analysis of Roman medicine, we first have to understand Galen's history and how it influenced the lens from which he viewed Roman medicine.

Galen was born in August or September of 129 CE to an affluent family that had amassed their wealth in architecture and land surveying.<sup>55</sup> His great-grandfather was a land surveyor. His grandfather was the president of the carpenters' guild in Pergamum. Pergamum, a city located in Asia Minor, was a center of medicine and wealth in the second century CE. With the financial support of the Roman emperor Hadrian, massive building projects had been undertaken, including temples, a stadium, a huge forum, and the expansion of the Asclepeion, which was

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<sup>53</sup> Jackson *Doctors and Disease*, 61

<sup>54</sup> Galen, *De Optimo Medico Cognoscendo*, trans. Albert Z. Iskandar (Berlin: Akademie-Verlage, 1988), 31.

<sup>55</sup> Jackson, *Doctors and Disease*, 60-61; Galen "My Own Books" L. 40 trans. P.N. Singer *Selected Works* (Oxford: Oxford University Press, 1997), 18.

located outside the city walls. This development provided Galen's father Nikon, one of the leading architects in Pergamum at the time, great monetary wealth. Galen revered his father, whom he describes as being "a man of great culture, an expert in geometry and astronomy as well as in architecture, who carried out experiments on his crops and wines to improve their quality."<sup>56</sup> Galen's admiration for his father explains why he listened to his father and applied Nikon's scientific approach to his own study of medicine.

Nikon directed Galen's studies, having Galen learn Greek and choosing all of Galen's teachers. Nikon even brought Galen along for philosophy lectures in Pergamum when Galen was only 14. Nikon also encouraged Galen to study medicine, after Asclepius told Nikon in a dream that Galen was destined to be a great doctor.<sup>57</sup> The choice of a profession in medicine would not be the last time Galen's life was altered by the god Asclepius, showing even the scientific Galen held some religious beliefs. A nineteen year old Galen left Pergamum after his father's death and studied medicine in Smyrna and Alexandria.

Galen sought out Pelops at Smyrna to learn anatomy and arrived in Alexandria for a variety of lecturers and the surgical techniques.<sup>58</sup> While in Alexandria, Galen showed great disdain for the city and often disagreed with many of his lecturers. According to Nutton, Galen was interested in the arrival of a wide variety of merchants from diverse regions into the port of Alexandria.<sup>59</sup> This exposure allowed him to learn about astronomical navigation, as well as the rare drugs and minerals the merchants carried. In addition to learning navigation, Galen learned Alexandrian surgical techniques from Alexandrian surgeons. This skill would prove useful for

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<sup>56</sup> Nutton, *Ancient Medicine*, 216; Galen, "The Order of My Own Books" L. 59, trans. P.N. Singer, 27.

<sup>57</sup> Ibid.

<sup>58</sup> Jackson, *Doctors and Disease*, 61.

<sup>59</sup> Nutton, *Ancient Medicine*, 217.

his first medical position. When he returned to Pergamum in 157 CE, he was appointed as the physician for gladiators, in part due to his dedication to and skill in medicine.<sup>60</sup>

Galen's first medical position relied heavily on his skills in surgery and physical medicine as he was employed by the high priest of Pergamum as lead physician of the high priest's gladiators. By the second century CE, gladiators had become the equivalent of today's professional athletes. Gladiators were considered large investments because of the cost of housing, training, and arming them. In order to prolong the life of their investments, gladiators' owners would hire surgeons and doctors to mend wounds and keep the gladiators on a strict diet to keep them healthy and fit. Because of the nature of the sport, Galen garnered exposure to many types of wounds, such as the cleaning and stitching of slashes in the thighs, buttocks, and arms. He also was in charge of their diets and general health, providing him with experience outside of surgery. Galen claims to have only lost two gladiators in his first term of service, as opposed to the sixteen lost by his predecessor. He was also hired by subsequent high priests to be the head physician for their gladiators, indicating his success as a physician.<sup>61</sup>

In 162 CE Galen left Pergamum in favor of Rome, possibly to further his medical career or to flee political uprising within Pergamum.<sup>62</sup> During Galen's first visit to Rome, he began to make a name for himself by performing public demonstrations of his medical theories. Galen would often perform these public displays to discredit his competitors' theories. One particular display includes Galen's assertion that the brain controlled the body, including the voice, when he found the recurrent laryngeal nerves to support studies by Herophilus and Erasistratus.<sup>63</sup>

Despite evidence which support this theory, many doctors still followed Aristotle's logic. They

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<sup>60</sup> Nutton, *Ancient Medicine*, 223.

<sup>61</sup> Galen, *De Optimo Medico Congnoscendo*, 9.7.

<sup>62</sup> Nutton, *Ancient Medicine*, 224; Galen, 14, 622: *CMG* 5, 8, 1, 92-3 as seen in Nutton, *Ancient Medicine*, 392.

<sup>63</sup> Jackson, *Doctors and Diseases*, 62.

stated that the heart controlled the body, which they argued was "proven" by the fact the voice exists in the chest.<sup>64</sup> Galen, to disprove Aristotle's theory, performed a public demonstration where he severed the recurrent laryngeal nerves on live animals that were particularly loud, silencing them, thus proving the brain controlled the voice.<sup>65</sup> These spectacles were something Galen did often and made him a formidable opponent for those who opposed his views. Despite this newfound success, Galen left in the summer of 166 for Pergamum, narrowly escaping an epidemic in Rome. His reasoning for returning was that a stasis had ended in Pergamum, which granted those previously exiled due to local politics the right to return safely.

Emperors Marcus Aurelius and Lucius Verus summoned Galen back to Rome in late 168 to be one of the military physicians during the Roman campaign into Germany due to his medical skills.<sup>66</sup> Lucius Verus died unexpectedly, however, before the campaign could begin. His demise caused the campaign to be delayed for several months as the army had to march back to Rome to perform the proper funeral rites. It was at this time that Galen's life would, again, be touched by the god Asclepius. Galen told Marcus Aurelius that Asclepius came to him in a dream and forbade him to go on the campaign.<sup>67</sup> Marcus Aurelius, being a pious man, listened to the dream and let Galen stay in Rome to take care of Marcus Aurelius's heir, Commodus, rather than marching to Germany with the army.<sup>68</sup> It is after this point in his lifetime that details surrounding Galen begin to become less descriptive. We know that he continued to write and publish and lived in Rome into the third century.<sup>69</sup> Some sources claim he died at age 70, in either 199-200 CE, but Arabic authors claim he died at age 87 in the years 216-217 CE. The

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<sup>64</sup> Ibid.

<sup>65</sup> Galen *On the Usefulness of the Parts of the Body I*, 412-25 as seen in Jackson, *Doctors and Diseases*, 62.

<sup>66</sup> Nutton, *Ancient Medicine*, 225.

<sup>67</sup> Ibid.

<sup>68</sup> Galen, "My Own Books" L. 19, trans. P.N. Singer, 8.

<sup>69</sup> Nutton, *Ancient Medicine*, 225.



later age is more likely, due to writings attributed to him dated after 204 CE , which means Galen spent 17 years as a student and 70 years as a practitioner.<sup>70</sup>

Galen was a man that clearly was the Hippocrates of his time, from his contributions to Roman medicine in his writings, teachings, and medical skill. Athenaeus of Naucratis, a Greek rhetorician and grammarian, included Galen among his ‘sophists at dinner’, for Galen produced more works on philosophy and medicine than any before him.<sup>71</sup> Alexander of Aphrodisias, one of the most celebrated ancient Greek commentators on the writings of Aristotle, who thought little of Galen as a philosopher, still included him alongside Plato and Aristotle as examples of what it meant to be ‘a man of repute’.<sup>72</sup> Galen’s contemporaries and their successors respected him, even if they did not always agree with his theories and actions.

*De Optimo Medico Cognoscendo* is Galen’s view of his contemporary medical profession and provides us with a look at both Roman society’s and Galen’s view of the Roman doctor. From these views, Galen provides what makes a great doctor and how to change the current system of Roman medicine. In Galen’s eyes, a great doctor must have an understanding of Hippocratic and other medical theories, a capacity to perform accurate prognosis, a great anatomical knowledge, and the ability to heal patients without the use of surgery, keeping it the last possible option.

Roman doctors relied heavily on the apprenticeship system, much like the craftsmen to when Homer compared doctors. Galen himself supported this system, as long as the doctor did not charge a fee to his apprentices.<sup>73</sup> The opportunity provided apprentices a chance to learn

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<sup>70</sup> Ibid., 226.

<sup>71</sup> Athenaeus, *Sophists at Dinner* L. 1, 1e; 26c-27d; 2, 115c-116a trans. Nutton, *Ancient Medicine*, 228;

<sup>72</sup> Nutton, *Ancient Medicine*, 228; R.W. Sharples, "Alexander of Aphrodisias, on Time" *Phronesis*, Vol. 27, No. 1 (1982).

<sup>73</sup> Nutton, *Ancient Medicine*, 225.

what Galen referred to as “demonstrative science,” allowing them to become knowledgeable and articulate on Hippocrates and other learned doctors.<sup>74</sup> The system of apprenticeship, however, was imperfect, and no governing medical bodies existed that enforced any kind of curriculum.<sup>75</sup> Many doctors took on multiple apprentices as a means of generating revenues. Well known physicians accepted so many apprentices that it sometimes caused massive followings of apprentices. Hippocrates even had numerous apprentices as a way to generate more funds, which shows the tradition of being paid by apprentices.<sup>76</sup>

These large groups of apprentices prompted Martial to write, “I was sickening; but you at once attended me Symmachus, with a train of a hundred apprentices. A hundred hands frosted by the North wind have pawed me; I had no fever before, Symmachus; now I have.”<sup>77</sup> While Martial is writing this mostly for comedic effect and may be exaggerating the amount of apprentices Symmachus had, the sentiment of Romans towards doctors can be seen. This animosity Martial writes towards doctors, especially towards the apprenticeship system, shows the main fault with the system is that doctors accepted payment from apprentices even if it meant endangering patients, something Galen did not agree with or practice.

Based on Galen's knowledge from the teachings of Hippocrates and other admired physicians such as Diocles, Pleistonicus, Phylotimus, Praxagoras, Dieuches, Herophilus, and Asclepiades, Galen stresses that a professional doctor should be an expert at prognosis.<sup>78</sup> Galen writes, “...the best physicians should be able to foresee whatever is likely to happen to their patients. They should take precautionary measures, a long time in advance, by getting ready and

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<sup>74</sup> Galen, *De Optimo Medico Congnoscendo*, 5.4.

<sup>75</sup> Jackson, *Doctors and Diseases*, 58.

<sup>76</sup> Nutton, *Ancient Medicine*, 56; Plato, *Protagoras*, 311 b-c trans. Vivian Nutton; Aristotle, *Politics* 4, 4:1326a trans. Vivian Nutton.

<sup>77</sup> Martial *Epigrams* V, l. ix trans. W.C.A. Ker found in Jackson *Doctors and Diseases*, 58.

<sup>78</sup> Galen, *De Optimo Medico Congnoscendo*, 4.3.

by preparing everything that might be needed against whatever might occur,” pointing out how important prognosis is for both patient and doctor, as it will help determine the course of treatment.<sup>79</sup> Galen provides a personal example, writing, “...on my first visit to Rome, I attended some of its great physicians examining a feverish youth: they were debating and disputing the issue of blood-letting. After their lengthy arguments, I said, 'Your disputations are superfluous. Nature will soon break a vein, and superfluous blood in the body of this youth will be evacuated through his nostrils.' They had not long to wait to see this with their own eye. At that time, they were amazed and remained silent: I earned their heartfelt hatred, and they nicknamed me 'wonder-teller'.” Galen’s skill of prognosis was so astounding it aroused hatred and respect in the local Roman doctors. For Galen, this skill of prognosis is necessary in all good doctors. He stresses its importance because without the skill of prognosis a doctor will likely kill his patient. To Galen, the absence of the skill of prognosis indicates a doctor’s lack of training in Hippocrates and other medical literature, for otherwise they would have known the correct prognosis for the patient and treated them accordingly.<sup>80</sup>

While prognosis was paramount for a good doctor, anatomical skill trumped all other knowledge. Galen was an expert at anatomy and preached the importance of a doctor having this knowledge. He writes, “I performed many anatomical demonstrations before the spectators; I made an incision in the abdomen of an ape and exposed its intestines: then I called upon the physicians who were present to replace them back (in position) and to make the necessary abdominal sutures – but none of them dared to do this. We ourselves then treated the ape

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<sup>79</sup> Galen, *De Optimo Medico Congoscendo*, 2.2-3.

<sup>80</sup> *Ibid.*, 4.6.

displaying our skill, manual training, and dexterity.”<sup>81</sup> While Galen comes off as being haughty, he is focusing on the importance of an anatomical understanding. He also points out the importance of surgery and how dexterity and manual training affect the outcome, not just anatomical understanding. Correct prognosis is important, but the doctor must also be able to perform the necessary procedures on the patient.

While Galen shows his skill in surgery and anatomical understanding, he asserts the best physicians are able to cure patients without having to perform surgery. Galen writes, “I say that you should consider a physician learned and wise, trained and skillful, if he can cure with drugs diseases which surgeons treat by making incision.”<sup>82</sup> These drugs were often mixtures of various plants, spices, and powders that were circulated throughout the Roman Empire. In fact, works have been written by authors focusing on organizing the various plants and mixtures used for medical purposes, such as Dioscorides, who wrote about 600 remedies in his *De Materia Medica*.<sup>83</sup> These remedies were used in place of the surgeon’s knife for illnesses such as kidney stones and were yet another mark of a great physician, according to Galen.

With all these skills and training Galen recommended for doctors, one might think that Roman doctors were well-trained professionals. Unfortunately for Romans, doctors were often not professionally trained, and Roman society viewed them as charlatans. Earlier this paper mentioned Pliny's explanation, which was that Romans felt they should not have to pay for life-saving services.<sup>84</sup> This view was further supported by the fact that many Roman believed only foreigners and slaves filled the role of doctor. Early in Roman medicine, those that performed

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<sup>81</sup> Ibid., 9.6.

<sup>82</sup> Galen, *De Optimo Medico Congoscendo*, 10.1

<sup>83</sup> Jackson, *Doctors and Diseases*, 76.

<sup>84</sup> Pliny, *Natural History*, trans. W.H.S. Jones, (Cambridge: Harvard University Press, 1963), 193.

medicine were Greek, and many were slaves or freed slaves, verifying this stereotype.<sup>85</sup> Galen, reflecting upon this view in disgust, writes “In ancient times...kings educated their sons in this (art), and at that time, none of them had ever thought it was shameful to take up this art of Apollo and Asclepius. At present, its status has declined; it is suitable (only) for slaves and despicable men.”<sup>86</sup> Galen is surprised at the lack of a pursuit in the art of medicine, especially because so many people recognize the importance of health.<sup>87</sup> The lack of medical knowledge amongst the general population, however, allowed almost anyone to claim the profession of a doctor, something writers like Martial and Phaedrus note, causing further mistrust of Roman medicine.<sup>88</sup> The ease with which an individual could proclaim himself a doctor was astonishing, just as in the time of Hippocrates, causing most Romans to distrust doctors.<sup>89</sup> As Galen notes, “When wicked men realized how stupid others could be, they found it unnecessary to obtain any medical instruction in order to acquire skill and dexterity. They resorted to hunting rich men, each in the way, in their opinion, he would be easily led...”<sup>90</sup> These “wicked men” only further discredited medicine and reinforced the mistrust held by the civilian sector towards doctors.

Galen wrote *De Optimo Medico Congnoscendo* to educate wealthy Roman on how to analyze a doctor scientifically. Prior to this book, doctors were often assessed by their wealth or by their associates.<sup>91</sup> Many physicians, according to Galen, spent too much time on things other than practicing and learning medicine. Doctors should be judged on their knowledge and skills listed earlier and their devotion to their craft, not the amount of coin in their pocket. Galen’s

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<sup>85</sup> Jackson, *Doctors and Diseases*, 56.

<sup>86</sup> Galen, *De Optimo Medico Congnoscendo*, 1.3-4.

<sup>87</sup> *Ibid.*, 1.1.

<sup>88</sup> Jackson, *Doctors and Diseases*, 58

<sup>89</sup> Ludwig Edelstein, "The Hippocratic Physician", *Ancient Medicine*, eds. Owsei Temkin and C. Lilian Temkin. trans. C. Lilian Temkin (Baltimore: Johns Hopkins Press, 1987), 87.

<sup>90</sup> Galen, *De Optimo Medico Congnoscendo*, 1.8.

<sup>91</sup> *Ibid.*, 9.8.

own personal experiences are consistent with this type of judgment, such as when he cut open an ape to prove his medical prowess to the high priest in Pergamum.<sup>92</sup>

Galen was not chosen to be the gladiators' doctor in Pergamum because of his familial connections, but because he displayed skill and devotion to medicine. It was this focus on skill and training that Galen preached that would provide Roman doctors with much-needed professionalism. This call for professionalism was taken up not by the civilian sector of the Roman Empire, but the Roman military, famed for its professionalism.

While the teachings of Galen in this case were for the Roman populace, they were largely ignored by that group who continued weighting medical skill with political measures of wealth and popularity. Instead, the Roman military understood Galen's teachings as they had already realized the value of establishing this type of professionalism in their army to help maintain their military assets — soldiers. Books such as *De Optimo Medico Congnoscendo* furthered the military's view of doctors and provided the Roman army with new ways to evaluate and educate military doctors.

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<sup>92</sup> Galen, *De Optimo Medico Congnoscendo*, 9.6-8.

### Chapter 3: Roman Military Medicine and Spread of Western Medicine

The Roman *gladius*, the main sword used by the average Roman soldier, was responsible for more deaths on battlefields than any other weapon up until the invention of the firearm.<sup>93</sup>

The frequency and magnitude of battles that Rome fought was staggering. To meet the needs of this amount of warfare, Rome required a standing army with training, resources, and professional standards. Thus, Rome heavily invested in soldiers' training, equipment, and lodging. This investment in soldiers is similar to how the high priest of Pergamum invested in his gladiators and, just like the high priest, the state recognized that soldiers need medical care. Since Rome had the professional standing army to maintain its empire, it needed a professional medical corps to keep soldiers battle-ready to maximize the potential return on the state's investment. The creation and structure of this medical corps, in addition to benefiting Roman soldiers, allowed for the creation of medical standards and a medical body of knowledge that encouraged the development of the medical profession. The Roman army was vital for the continuation, expansion, and supply of Roman medicine, because it established a professional medical corps and provided Roman medicine with new knowledge and resources.

First we must explore how the Roman military became professionalized, in order to understand how Roman medicine became more professional under the Roman military. The need for a professional standing army came after the defeat of both Roman consuls in 105 B.C. at the hands of Germanic tribes.<sup>94</sup> In the Battle at Arausio, over 80,000 Roman soldiers were lost.<sup>95</sup> At this time in the Roman Republic, soldiers could mostly free, land-owning Roman

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<sup>93</sup> Gabriel and Metz, *A History of Military Medicine*, 14.

<sup>94</sup> Robert Verlic, *From Citizen Militia to Professional Military: Transformation of the Roman Army*. (Masters diss., U.S. Army Command and General Staff College, 2007), 28.

<sup>95</sup> *Ibid.*, 29.

citizens, and serving in the army was seen as a civic duty.<sup>96</sup> After the severe losses at Arausio, Rome began to panic because the army still needed to fight invading Germanic tribes. The panic was likely a result of the memory of the Gauls sacking Rome in 390 BC. Consequently, despite Roman law dictating a ten-year interval between consulships, Marius was elected as consul in Rome in 104 BC. Since Marius was the "Champion of the people" and the "Victor of the Jugurthine War," his reelection calmed the panicked Romans.<sup>97</sup>

To create a new standing army, Marius established a new widespread army enrollment system. Now Romans who did not own land could join the army and, upon retiring, could be granted newly conquered lands and other benefits.<sup>98</sup> In addition, rather than army service being compulsory, free citizens could volunteer in the army. Marius also did away with the traditional distinction in classes within the army. The *Velites* and *Hastate* classes were the poorer, ill equipped, and less trained troops, while the *Principes* and *Triari* classes were the wealthier, well trained, and heavily armed soldiers.<sup>99</sup> Instead, the new system appointed officers based on skill, not family connections, and these officers decided where soldiers served and made sure each soldier was given the same armor and training. Roman army training was based on gladiatorial training methods, where soldiers could gain individual fighting skills to distinguish themselves as professionals.<sup>100</sup> This dissipated the tension around social class that had previously been in the army and allowed for the army to be a unified, well-trained, and armed force. The army was no longer a duty required of Roman citizens, but an opportunity for any free man to earn a consistent wage and have retirement benefits of land and wealth. As a result, the Roman army

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<sup>96</sup> Verlic, *From Citizen Militia to Professional Military*, 12.

<sup>97</sup> *Ibid.*, 29.

<sup>98</sup> *Ibid.*

<sup>99</sup> *Ibid.*, 30.

<sup>100</sup> *Ibid.*



was better trained, and thus better prepared to perform in battle, facilitating the expansion of the Roman Empire.

Just as the Roman military shifted from a conscript army to a professional force, so did Roman military medicine. The early Roman Republic army did not have a medical corps attached to serve the average soldier. Instead, just like the ancient Greek armies, civilian doctors were hired by officers who could afford them.<sup>101</sup> Since the average soldier could not afford private doctors, they were left to treat themselves. Aside from some soldiers who gained reputations for their skill in bandaging wounds, there was little medical assistance for the average soldier.<sup>102</sup> While soldiers gained some skill in bandaging wounds, there is little chance they understood how to clean a wound effectively, creating opportunities for infection. Thus, soldiers would often die from injuries that may have healed with proper medical treatment.

In 46 BC Julius Caesar recognized Rome's lack of medical service when he conferred Roman citizenship to all medical practitioners within Rome.<sup>103</sup> Caesar's aim was to attract medical professionals to Rome, thereby addressing this issue. Augustus built on Julius Caesar's approach by granting all free physicians the title of *dignitas equestris*, a title generally associated with economic wealth and second only to senators in social standing, along with the rights of full Roman citizenship if they joined the Roman army to serve as doctors.<sup>104</sup> In addition, military doctors not only received the customary land grants and other retirement benefits from serving in the army, but also were allowed to open a civilian practice exempt from certain taxes and civic

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<sup>101</sup> Gabriel and Metz, *A History of Military Medicine*, 161.

<sup>102</sup> *Ibid.*, 161.

<sup>103</sup> *Ibid.*, 163

<sup>104</sup> *Ibid.*

duties after retirement.<sup>105</sup> This policy not only increased the number of doctors associated with the army, but it provided civilians with better access to professional medical attention once these doctors left the army. Civilians now had access to doctors that went through professional training at the expense of the Roman military, by allowing doctors to continue practicing after they retired from the army.<sup>106</sup> This policy allowed Roman medicine to develop and benefit Roman society, despite the negative views civilians had of doctors. These actions demonstrate the importance the Roman military had in the continued development and implementation of Roman medicine across the Empire.

The Roman military recognized the need for a professional medical corps, but the next step was to determine what was necessary for this medical corps to operate efficiently and effectively. According to Gabriel and Metz, there are five main criteria needing to be met in order to establish a working, effective medical corps.<sup>107</sup> The first requires professionally trained military doctors who serve a full-time career with the army, separate from civilian trained doctors. These military doctors received training and certification from the military. The second criterion is a sufficient number of professional medical support staff. This staff consists of nurses, surgical assistants and, perhaps most importantly, the combat medics to provide first aid on the battlefield. The third requirement is to have an ambulance corps to transport those wounded in battle to the surgeons in the rear of battle. The ambulance corps was responsible for working with combat medics to provide immediate first aid while transporting wounded soldiers back to field hospitals. Logically, the fourth requirement is a system of military hospitals for immediate care and long-term recovery. A professional medical staff is useless if they do not

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<sup>105</sup> Codex Justinianus 10.53.1, trans. Hermann Dessau *Inscriptiones Latinae Selectae*, as seen in Vivian Nutton, "Medicine and the Roman Army: A Further Reconsideration", *Medical History* 13, no.3 (1969), 266.

<sup>106</sup> Richard Gabriel, "The Best Medicine", *Military History* July, (2011): 38.

<sup>107</sup> *Ibid.*, 154

have access to proper facilities to treat the wounded effectively. Lastly, a logistical system capable of organizing and sustaining the needs of doctors and hospitals should be in place in peace and war. The Roman military met all these requirements and provided Roman medicine the opportunity to professionalize, standardize, and grow.

In order to continue medical developments and create the professional medical corps, the Roman military needed to establish a medical training program. Such a program is exactly what Galen called for when he said doctors needed to read Hippocrates and other noted doctors to learn about medicine. In addition to reading the great authors, doctors would need to demonstrate their medical skills in a clinical setting, such as performing surgery. The Roman army focused on creating medical manuals of practical knowledge to further all military doctors' education.<sup>108</sup> Marcus, a military doctor in Alexandria in the third century CE, wrote in a letter to his parents, "shake the dust off my medical books, shake it off and remove them from the window, where I left them on my departure."<sup>109</sup> Marcus left his medical books at home, no longer needing them because he had access to others through the Roman military. Through this system of education, the Roman military constantly provided a professionally trained group of medical practitioners with new medical knowledge and techniques to treat the Roman soldier, thereby improving not only the likelihood of soldiers' survival rate after a battle, but also the soldiers' overall health.

While having professionally trained doctors provided soldiers with the opportunity for better medical treatment, a support system had to be in place to make these doctors as effective as possible. The Roman military had given soldiers better medical treatment by creating a

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<sup>108</sup> Gabriel and Metz, *A History of Military Medicine*, 164.

<sup>109</sup> P. Ross-Georg., III, I, I-7, trans. in Davies 1969, 93-4, found in Jackson, *Doctors and Disease*, 129.

professional medical corps and establishing the educational system to train military doctors. The second requirement, having a professional support staff, was fulfilled by establishing support staff in the army who also received basic training. Soldiers were assigned to various staff, such as combat medics or surgical assistants, and then received some medical training, similar to the training given to doctors.<sup>110</sup> These assistants were soldiers, however, not doctors and therefore did not receive the benefits conferred upon doctors. Evidence on the reliefs from Trajan's column shows combat medics, known as *capsarii*, wearing similar armor to the average soldier and bandaging wounded men.<sup>111</sup> These "bandagers" were vital because they provided first aid to the wounded on the battlefield. The *capsarii* were the first responders for the Roman medical corp and initiated the entire process of getting the wounded from the battlefield to the hospitals.

Not only did *capsarii* provide immediate medical support, they also performed triage.<sup>112</sup> Triage is extremely important for military medicine because its aim is to return soldiers to battle as quickly as possible. Triage works by separating out casualties and non-casualties based on the severity of their wounds. They then treat the least wounded first to have them returned to battle quickly. Heavily wounded soldiers, those unable to return to battle, were bandaged and set aside for transport since these wounds needed more time to recover. By practicing triage, *capsarii* could effectively treat those on the battlefield while sending the heavily wounded back to the doctors to receive further, and often more complex and assisted, treatment. The wounded were transported by an ambulance corps made up of wagons.<sup>113</sup> This corps most likely came from the wagons used to transport necessary supplies for the army. These wagons were then emptied and used during the battle as the ambulance corps. This met the third requirement

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<sup>110</sup> Gabriel and Metz, *A History of Military Medicine*, 166.

<sup>111</sup> *Ibid.*, 167; Figure 1.

<sup>112</sup> Gabriel and Metz, *A History of Military Medicine*, 167.

<sup>113</sup> *Ibid.*

needed for a professional medical corps, having an ambulance corps. The medics worked in conjunction with the ambulance corps to send the troops back to the fourth requirement, hospitals.

The Roman army is the first recorded instance of adhering to the medical principle of immediacy, or treating the wounded as quickly and as close to the battlefield as possible. Romans did this by establishing field hospitals alongside the medics and ambulance corps.<sup>114</sup> These field hospitals, arranged in a rectangular tent fashion, were effective. They saved, on average, seventy percent of the wounded that reached them.<sup>115</sup> Survival rates this successful would not be seen again until over one-thousand years later in the Russo-Japanese war in 1904.<sup>116</sup> In the time of the Roman Republic, the army practiced billeting wounded soldiers with Roman citizens, which meant housing the injured in civilian homes to recover rather than military camps.<sup>117</sup> This practice, however, was impossible to follow once the Roman army left Roman territory, forcing the military to come up with the concept and creation of hospitals. After battles, however, injured soldiers needed long-term care. Thus Roman camps were built with permanent hospitals for soldiers. These hospitals, known as *valetudinaria*, were built to accommodate between five to ten percent of a legion's strength. Generally, this meant that 250 to 500 soldiers could be accommodated by a hospital at any time.<sup>118</sup> The basic floor plan in figure 4 shows a *valetudinarium* located in Neuss, Germany. The civilian sector had no hospitals, but

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<sup>114</sup> Gabriel, "The Best Medicine", 38

<sup>115</sup> Ibid.

<sup>116</sup> Ibid.

<sup>117</sup> Gabriel and Metz, *A History of Military Medicine*, 162.

<sup>118</sup> Gabriel, "The Best Medicine", 40.

the military created efficient, remarkably modern hospitals to accommodate their soldiers.<sup>119</sup>

The best description of a *valetudinarium* comes from Gabriel and Metz, who write:

"The entrance hall led to the hospital itself opening into a large hall lighted by clerestory windows and used as a clearing center when casualties were high. Beyond this hall and having only one entrance was the operating theater which was also lighted by multiple windows. Off the theater itself was a small hearth room where instruments and dressings were sterilized, as suggested by Galen. The eastern side of the hospital contained the hospital kitchen and pantries which could be used to provide special diets for convalescent soldiers. The western outer wing contained a suite of baths, including a dressing room, and the lavatories. Three full wings comprised the wards, small cubicles (3.4x4.2 meters), arranged in most hospital construction today. The entrance ways to the rooms were to a small side corridor that separated the rooms from the main corridor, thus reducing noise and lessening the risk of infection. A few of the rooms were reserved for patients who required isolation for one reason or another. Other rooms were set apart for use by the hospital staff, including the clerks. More rooms housed examination areas, large lavatories, and the hospital mortuary. The roof of the hospital was constructed in such a way as to provide adequate cooling, ventilation, and fresh air in hot weather, and a central heating plant insured adequate warmth in the winter. The large central courtyard provided a source of quiet, fresh air, and light and could be enjoyed by the wounded while convalescing."<sup>120</sup>

The layout and structure of a Roman *valetudinarium* allowed them to be self-sufficient structures that could quarantine any ill or injured soldiers from the rest of the camp. The Romans did not want diseases to spread, and they believed in Varro's theory on disease. Varro said disease had the eight following characteristics: "the pathogen is animal, it is alive, it is too small to be seen, it is airborne, it actually enters the body, it emanates from swamps, it produces not one disease but many, and these diseases are refractory."<sup>121</sup> These traits dictated how camps and hospitals were laid out to avoid disease. The idea behind creating cubicles in a small corridor was to decrease the interaction between the ill and the injured, ostensibly to lessen the chance of disease. Sterilizing medical instruments also cut down the chance of infection and disease. The purpose of a hospital was to return soldiers to active duty as soon as possible, not have them die of infection.

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<sup>119</sup> Gabriel and Metz, *A History of Military Medicine*, 172.

<sup>120</sup> *Ibid.*, 170-172.

<sup>121</sup> *Ibid.*, 178.

This focus on limiting exposure to disease, essentially preventive care, was a pillar of the Roman military doctor's protocol. This started with soldiers going through health screenings by putting them through physical tests and training, similar to modern soldiers.<sup>122</sup> Once a soldier was accepted into the army, doctors stressed continuous focus on good hygiene by having strict rules on camp layout. This meant the use of sewers to dispel refuse away from the camp, access to clean, running water, a varied diet, and regular health inspections.<sup>123</sup> The focus on clean water comes from the recognition that stagnant, swampy water holds disease within it, in accordance with Varro's theory. Ideally, all military camps were built in a clearing on a hill with fresh running water nearby. Refuse was either placed away from the clean water or downstream of the water supply, so as not to taint it. The focus on preventive care also kept soldiers strong and fit to lessen their chance of disease, thus increasing their military capabilities.

While preventive care was integral to running camps and hospital, soldiers still needed treatment for battle wounds and diseases. This varied need created specialists, such as surgeons, who were trained by the military and kept in almost every camp. These surgeons were extremely skilled in treating battle wounds. Plutarch recorded the surgical skill of Cleanthes, a military surgeon, who could replace the spilled entrails of a soldier with a lower chest wound, stop the hemorrhage, and then effectively close up the wound.<sup>124</sup> This example shows the similarities to Galen's expertise at replacing the entrails of an ape he opened up in a demonstration. Surgeons could even perform plastic surgery, which they learned from India, and cataract surgery.<sup>125</sup> These examples show the skill and effectiveness surgeons had within the Roman army at treating

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<sup>122</sup> Gabriel and Metz, *A History of Military Medicine*, 164-165.

<sup>123</sup> Ibid.

<sup>124</sup> Gabriel, "The Best Medicine", 40.

<sup>125</sup> Gabriel and Metz, *A History of Military Medicine*, 172.

battle wounds. Roman medicine continued to grow and expand by adopting skills from the various peoples that the Roman army encountered in its expansion of the Roman Empire.

Not only did the Roman army employ surgeons, but other specialists included eye doctors, urologists, psychiatrists and even the *marsus*, who dealt with snake bites and scorpion stings.<sup>126</sup> Some of the skills employed by these specialists came from the various lands conquered by Rome. For example, Roman doctors would have had no experience dealing with scorpion stings soldiers encountered in desert areas as these creatures did not inhabit the Italian peninsular. Local populations, however, had medical remedies which were then adopted into Roman medicine to treat scorpion stings. These remedies can be found in *De Materia Medica* written in the first century CE by Pedanius Dioscorides, a pharmacologist from the Roman army. The *De Materia Medica*, comprised of five books, had over 600 remedies from all over the Empire.<sup>127</sup> These books are still read today. *De Materia Medica* indicates that Roman medicine continued to grow through the Roman military because the military needed to protect its investment. As soldiers traveled to new areas, they encountered new diseases that could only be treated by adopting new medical techniques. The doctors assigned to these forces would send these techniques back to be printed in Roman medical textbooks. This material was then incorporated into the curriculum taught to future military physicians. This process allowed for new knowledge to circulate and promoted the publishing of books like *De Materia Medica*, encouraging growth and standardization within Roman medicine.

The final requirement of a professional medical corps, a logistical system capable of organizing and sustaining this corps, indicates the importance the Roman military placed on

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<sup>126</sup> Gabriel and Metz, *A History of Military Medicine*, 167.

<sup>127</sup> *Ibid.*, 172 and Jackson, *Doctors and Diseases*, 76.



medicine, exemplified by the financial and personnel investment made in this system. One example of this investment is the role of the second in command of the camp, the *praefectus castrorum*. The *praefectus castrorum*'s primary responsibility was to provide adequate medical provisions for military camps.<sup>128</sup> This position was most often a senior professional officer who reported directly to the commander of the camp. He had significant power to make sure the legion was sufficiently supplied. In addition, many medical supplies were duty-free to make them more easily transportable.<sup>129</sup> A prime example was acetum, a strong red wine used by doctors to disinfect wounds that also was the favorite drink of legionaries.<sup>130</sup> This wine, which was integral to cleaning wounds of soldiers, was labeled as duty-free to allow camps access to this valuable commodity and make transportation cheaper. Medical resources could arrive from all corners of the globe, especially the Far East, as noted by Pliny.<sup>131</sup> Goods could be transported from great distances because the Roman armies built great networks of roads. Again, the Roman military not only expanded Roman medical knowledge, but provided the necessary supplies for this knowledge with their network of roads. This connection shows the importance the Roman army had in supplying Roman medicine, which grew as a result of the Empire's expansion and incorporating this newfound knowledge.

From creating a professional medical corps to disseminating medical practices throughout the Roman Empire, the Roman army was vital for the continuation, expansion, and supply of Roman medicine. The Roman army professionalized and standardized Roman medicine by meeting the five criteria for a professional medical corps: a trained core of military doctors, sufficient amount of trained medical paraprofessionals, an ambulance corps, long-term hospitals,

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<sup>128</sup> Gabriel and Metz, *A History of Military Medicine*, 166.

<sup>129</sup> *Ibid.*, 151.

<sup>130</sup> *Ibid.*

<sup>131</sup> *Ibid.*, 172

and an adequate logistical system. These professional doctors sought to build Roman medical knowledge by incorporating local medical remedies into Roman protocols. In addition, once these newfound medical skills were published, the network of roads built by the Roman army allowed for the necessary ingredients to be imported from faraway areas, like India. The Roman military was responsible for driving new medical techniques and innovation that advanced and professionalized Roman medicine.

## Conclusion

Because of the widespread distrust of Roman doctors by the Roman public, the military functioned as the primary avenue through which Roman medicine grew and became professionalized. We first examined the origins of Roman medicine in order to understand this distrust of doctors by Roman society. Early Roman medicine was nothing more than self-administered folk remedies. Romans distrusted medical doctors, as they felt that they should not have to pay for their health. Additionally, doctors were often Greeks and slaves, which created a further social divide between Romans and doctors.

Next, we examined Galen and his views on Roman medicine within Roman society. Galen, himself a foreigner to Rome, spent his teenage years learning medicine throughout the Mediterranean. Galen became renowned for his medical prowess and wrote many works on medicine. Of particular interest to this thesis, *Optimo Medico Congoscendo*, provided wealthy Romans a set of guidelines for choosing good doctors. Galen voiced his opinions on why Romans viewed doctors poorly, mainly arguing that the lack of support and regulation of good doctors allowed any untrained individual to call himself a doctor. This lack of structure produced a wide spectrum of patient care, from Galen--a wonder-worker-- to cheats and charlatans. Galen suggested evaluating doctors based on their knowledge of great doctors, like Hippocrates, and their clinical skills. While the civilian sector in Roman society did not follow these guidelines, the Roman military recognized the need for a professional, effective medical corps.

This professional medical corps served the professional Roman army--an enormous population of crucial importance to the empire. Augustus first recognized the need for a medical corps to keep the trained Roman soldier healthy and battle-ready. Thus, the military incentivized doctors to join the corps, simultaneously establishing programs to train more military doctors. In

accordance with the five necessary components to a professional medical corps, the Roman army established a core of professional military doctors, trained medical paraprofessionals such as medics, an ambulance corps, hospitals, and the roads and trade networks to sustain this corps. With the professionalization of Roman medicine came the validation of the military doctor. In addition, the expansion of the Empire through the army exposed doctors to new medical practices to expand further the medical knowledge within Roman medicine. The Roman military drove Roman medicine to professionalization, innovation, and continuation in order to meet the ever-growing needs of the Empire.

## Images



Figure 1

Olecorre, photographer. "Epidaurus Theater" Photograph. July 2007. From Wikimedia.  
[http://commons.wikimedia.org/wiki/File%3ATheatre\\_of\\_Epidaurus\\_OLC.jpg](http://commons.wikimedia.org/wiki/File%3ATheatre_of_Epidaurus_OLC.jpg)



Figure 2

Imago, Image Bank. "Bronze Liver, Marked with Diagrams & Inscriptions" Photograph. From Imago The Roman Society Centenary Image Bank. <http://www.romansociety.org/imago/searching-saving/show/588.html>



Figure 3: Trajan's Column, Rome, Italy from Gabriel, "The Best Medicine", 41.

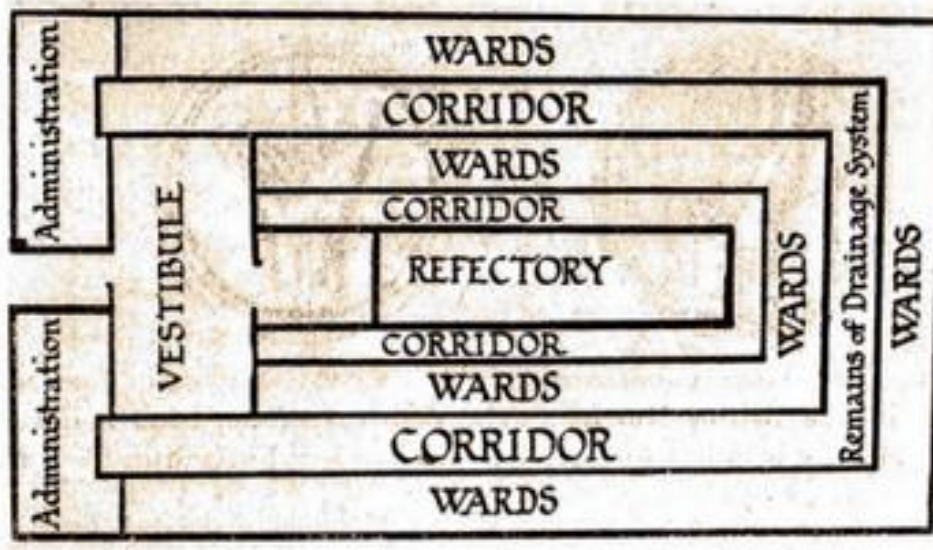


Figure 4: from Gabriel, "The Best Medicine", 40.

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