Apr 18th, 10:30 AM - 11:45 AM

Galen: The Philosophical Physician

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Western Civilization: History 101

6 Nov. 2017

EQ: To what extent did the philosophical trio of Socrates, Plato and Aristotle influence Galen's medical practice and contribute to his legacy?

Galen: The Philosophical Physician

In the words of the second century physician, Galen, "The best physician is also a philosopher" (Eichholz 66). Although in today's technologically-driven and science-oriented culture, philosophy isn't always at the forefront of one's mind when thinking of the medical practice, Galen's combination of philosophy and medicine advanced the medical field and set the standard of practice for the next fifteen centuries, until the time of the Renaissance. When thinking of Galen, most people consider the fifth century B.C.E. physician, Hippocrates, to have been his single most significant influence, however in order to truly understand the source of Galen's success, it is critical to realize the role which philosophy played in shaping his practice. While the philosophical connections between the legendary trio of Socrates, Plato and Aristotle is well known, their collective impact on the development of medical science is acknowledged to a lesser extent. Although Hippocrates significantly contributed to Galen's work and understanding of medicine, it was the power trio from Classical Athens- Socrates, Plato and Aristotle- who ultimately shaped Galen's medical practice and distinguished him from his contemporaries.

Born in 129 C.E., Galen was fortunate enough to experience the Roman Empire in its 'golden age'- during the time of the 'good' emperors (the Antonines). He was born and raised in Pergamon (modern-day Turkey), a rival of Alexandria, located in Asia-minor. His father, Nicon, was a wealthy architect and mathematician, depicted by Galen as kindly and intelligent, while his mother, on the other hand, was less caring, always scolding and beating the maids, and always ready to pick a fight with his father (Sarton 15).

Galen's father was quite involved in his son's education, and, until the age of 14, Galen was taught at home, on the farm, by his father. Once he turned 14, however, his father began accompanying him into the city, where he studied logic and eventually philosophy. His father, determined to teach his son the value of impartiality, and to refrain from adhering to any particular philosophical sect, insisted that his son be taught the principles of each sect (Platonism, Aristotelianism, Stoicism and Epicureanism), in order to develop a more comprehensive understanding of philosophy in its entirety (Thorndike 84). At 17 years of age, his father, inspired by a dream, advised Galen to begin studying medicine, leading to the beginning of his medical career (understanding that while philosophy would always be full of conflicting views, anatomical dissections would reveal the truth).

Over the next four years, Galen studied anatomy under Satyros, a respected anatomist from Smyrna. When Galen was 20, his father passed away, and Galen decided to leave Pergamon and travel to Smyrna, where he studied medicine under Pelops and Platonism under Albinus. In Smyrna, he wrote three books on the movements of the lungs and thorax. He then left for Corinth, where he studied under Numisianos. Finally, he arrived in Alexandria, the major scientific capital of the Empire, where he eventually finished his training after ten years (Sarton

17). At age 27, he returned to Pergamon, where he was named physician/surgeon to the gladiators, a position which he held from 158 to 161 C.E. This position served as a great opportunity for him to practice and build upon his surgical skills and observations, as he treated a large variety of wounds (Sarton 20).

Around 161 or 162 C.E., Galen left for Rome, where he practiced as a physician, performing many public demonstrations of dissections (only on animals, however), while still maintaining his philosophical studies under his friend, the Aristotelian philosopher, Eudemos. Unfortunately, his success in his cures caused feelings of jealousy and contempt among the other physicians. Whether because of these rising tensions or due to the outbreak of the plague, Galen decided to return to Pergamon in 166 C.E. (Sarton 21). Shortly after returning, however, he was summoned by Marcus Aurelius and Lucius Verus to accompany them on a military campaign in Northern Italy. In 169 C.E., however, when Verus died, Galen returned to Rome, where he served as physician to Marcus Aurelius and his son, Commodus, until 175 C.E., and eventually served Septimius Severus as well.

Galen's latest works date to after 207 C.E., meaning that Arab biographers are likely correct in their claim that Galen died around age 87, around 216/217 C.E. (Eichholz 61). Galen's medical theories were dominant in the practice of medicine in Europe and beyond, for approximately the next fifteen centuries, throughout the medieval period up until the age of the Renaissance (Johnston viii). Distinguishing Galen from his peers was his emphasis on the necessity of dissection and observation, and, as he once wrote, "It is reason that makes discoveries most rapidly; experiment merely provides evidence to confirm them" (Eichholz 67). Galen is often credited with having written more treatises than any other Greek, and although

many of his works on philosophy and logic were lost in the fire in the Temple of Peace in 191 C.E., his remaining works fill about twenty-one volumes, each around a thousand pages (Thorndike 83).

The influence of philosophy on Galen's work is indisputable, as it allowed him to go a step further in diagnosis and treatment than his contemporaries by 'bridging' the gap between his observations and the logic required to arrive at potential assumptions/conclusions. As he writes in his work *On Medical Experience*,

> When I take as my standard the opinion held by the most skillful and wisest doctors and the best philosophers of the past, I say: The art of healing was originally invented and discovered by *logos* (reason) in conjunction with experience. And today also it can be practised excellently and done well by one who employs both of these methods. (Johnston xxv)

As written by John Scarborough, professor in the School of Pharmacy, Department of Classics, and Department of Medicine the University of Wisconsin,

> Galen's work shows the heavy influence of philosophical reasoning. The correlation of structure and function dominated his anatomical investigations, and to Galen this was the 'real base of the perfect theology which transcended all other aspects of medicine.' This 'bright light' of philosophy guided his work in medicine. (Scarborough 303)

Unlike many of his contemporaries, Galen understood that philosophy aids a physician in discerning between truth and illusion, allowing him to arrive at much more precise diagnoses than other physicians and contributing to his legacy as the greatest physician in ancient Rome.

The influence of Socrates, the Athenian philosopher who lived by his saying, "Know thyself," is quite evident in Galen's pursuit of knowledge and relentless search for the truth. Although Socrates didn't commit any of his teachings to writing, his dedicated student, Plato, left a thorough record of his legacy and teachings, which allows one to arrive at the conclusion that Galen was, indeed, significantly impacted by Socrates (Kishlansky et al. 82). Before his execution, Socrates gave a speech, and, as recorded by Plato in *The Apology*, he told the audience, "The greatest good to man is to discourse daily about virtue and those other matters about which you have heard me speak and examine both myself and others, and that a life without examination is not a life worth living" (Plato, *Socrates* 43). Socrates was largely concerned with moral self-enlightenment and the quest for a better understanding of virtue, justice and wisdom (Kishlansky et al. 82). Similarly, Galen was also devoted to the pursuit and spread of knowledge, and,

> Writing in an old age, he says that he has never attached his name to his works and has never written for the popular ear or for fame, but fired by zeal for science and truth, or at the urgent request of friends, or as a useful exercise for himself, or, as now, in order to forget his old age. He regards popular fame as only an impediment to those who desire to live tranquilly and enjoy the fruits of philosophy. (Thorndike 90)

This is reflective of Socrates' views, as he contended that personal fame counts for nothing if one's life isn't, in itself, a life of virtue. Socrates was firm in his belief that the unexamined life wasn't worth living, and constantly questioned the beliefs of those around him (Kishlansky et al. 82).

At the time of Galen's existence, there were six main sects (schools of thought), and, during his upbringing, Galen's father ensured that his son was raised, "to follow no one sect or party but to hear and judge them all, to despise honor and glory, and to magnify truth alone" (Thorndike 84). Rather than unquestioningly devoting himself to a particular school of thought, all of which claimed to be the best and most knowledgeable, Galen was open-minded, taking 'bits and pieces' from each school, and ultimately relying on his observations and experience from dissections to inform his practice. Galen believed that,

> The teacher at least must first 'master all that has been said by the most famous of the ancients. And when he has done this, he must judge and test it for a very long time, and notice what agrees with the clear facts and what contradicts them, so that he can choose this and abandon that.' (Eichholz 63).

Galen was relentless in his pursuit of the truth and constantly strove to expand upon his knowledge, however he understood the value of never relying too heavily upon one source and ensured that he always studied various 'ancients,' scholars and texts, in order to acquire a comprehensive and accurate understanding of the material.

As Galen explained in his work, *On the Natural Faculties*,

> The fact is that those who are enslaved to their sects are not merely devoid of all sound knowledge, but they will not even stop to learn! Instead of listening, as they ought, to the reason why liquid can enter the bladder through the ureters, but is unable to go back again the same way,- instead of admiring Nature's artistic skill- they refuse to learn; they even go so far as to scoff, and maintain that the kidneys,

> as well as many other things, have been made by Nature for no purpose!
>
> (Galenus, *On the Natural Faculties*)

In another of his works, he claims that "They think it is treachery to speak the truth when it is likely to conflict with the doctrines of their own school [...] Each of them takes after the first teacher he meets without waiting to learn anything else from another" (Eichholz 63). This is reflective of Socrates, because he is expressing his frustration with those who simply take for granted what they are told to be true, shutting themselves off from learning anything new, rather than constantly questioning their knowledge in order to continue learning new things (even if they may challenge one's current beliefs).

Another way in which Galen was influenced by Socrates was in his frustration with the Sophists. Unlike the Sophists, who taught others at a fee, Socrates didn't charge for his teachings (Kishlansky et al. 81), and believed that he was 'superior' to them because he knew that he knew nothing (therefore allowing him to continue learning). As Galen wrote in *On the Natural Faculties,*

> Let us pass on, then, again to another piece of nonsense; for the sophists do not allow one to engage in enquiries that are of any worth, albeit there are many such; they compel one to spend one's time in dissipating the fallacious arguments which they bring forward. (Galenus, *On the Natural Faculties*)

In addition to sharing Socrates' frustration with the Sophists, Galen also expresses his contempt of his fellow physicians, complaining that, "There are no real seekers after truth in his time, but that all are intent upon money, political power, or pleasure" (Thorndike 86). Socrates felt similar frustration towards his contemporaries, and believed that those around him were too caught up in

meaningless pursuits (wealth, fame, etc.) rather than focusing on attaining a higher knowledge, which, he believed, was far more significant. As recorded by Plato in *The Apology*, Socrates revealed his frustration with his accusers, whom he believed had no respect for the truth, claiming that,

> Now I, being slow and old, am overtaken by death, the slower; and my accusers, being swift and skillful, by evil, the swifter of the two. And now I go away condemned by you to receive the penalty of death; but they go condemned by truth to receive the penalty of wickedness and wrong. (Plato, *Socrates* 45)

He believed that those who accused him of being 'impious' and corrupting the minds of the youth were ignorant and evil, as they were intentionally shutting themselves off from the truth.

In addition to Socrates, his devout student, Plato, also had a significant impact on Galen's medical work. One of Plato's largest influences upon Galen was his concept of the tripartite division of the soul. As author P. N. Singer explains, "Galen's conception of brain, heart and liver as 'sources' (*archai*) of the three Platonic parts of the soul is inextricably linked with his anatomical understanding of the three sets of channels (nerves, arteries, veins) through which they operate" (Singer). Plato argued that the three principal points of the body- the head, heart and liver- were the responsible for the overall function of the body (Boylan, "Galen (130-200 C.E.)"). As he wrote in *Timaeus*,

> That part of the inferior soul which is endowed with courage and passion and loves contention they settled nearer the head, midway between the midriff and the neck, in order that it might be under the rule of reason and might join with it in controlling and restraining the desires [...] The heart, the knot of the veins and the

> fountain of the blood which races through all the limbs was set in the place of guard, that when the might of passion was roused by reason making proclamation of any wrong assailing them from without or being perpetrated by the desires within, quickly the whole power of feeling in the body, perceiving these commands and threats, might obey and follow through [...] God combined with it the liver, and placed it in the house of the lower nature, contriving that it should be solid and smooth, and bright and sweet, and should also have a bitter quality, in order that the power of thought, which proceeds from the mind, might be reflected as in a mirror which receives likenesses of objects and gives back images of them to the sight ; and so might strike terror into the desires, when, making use of the bitter part of the liver. (Plato, *Timaeus*)

Through his observations, Plato developed the belief that the head/brain was responsible for *sophia* (reason), that the heart was responsible for *thumos* (emotion or spiritedness) and that the liver was responsible for *epithumos* (desire) (Boylan, "Galen (130-200 C.E.)"). Galen embraced this theory and continued to further develop it, using dissections and experimentations (only on animal bodies, however) to support his theories (Nutton 801).

In one of his many works, titled *PHP*, Galen supports Plato's theory of the tripartite division of the soul, and the source of emotion derived from each of the three parts. Galen believed that the three parts were, "The rational (*logistikon*) or leading-part (*hēgemonikon*), located, Galen argues, in the brain; the 'spirited' (*thumoeides*), located in the heart; and the desiderative (*epithumētikon*), located in the liver" (Singer). After making these claims, however, he explained how he came to draw such conclusions from his observations. He conducted

dissections and experiments on animals, ligating the spinal cord and observing the resulting loss in speech and mobility, allowing him to observe that the brain and spinal cord must, therefore, be the source of these actions (Nutton 801). In *PHP*, he wrote that, "Where the source of the nerves is, there is the *hēgemonikon*, but the source of the nerves is in the brain, the *hēgemonikon*, then, is in the brain" (Singer). Through his dissections, he came to understand that nerves were located in the brain, and that therefore, *hēgemonikon* (the leading part of the brain and "the source of perception and voluntary motion") must also be located in the brain, thus the brain was the source of logic and reason (Singer). To support the claim that the heart is the source of spiritedness, he observed that as one showed feelings of excitement or anger, they also exhibited much faster pulses and heart rates. Finally, to support his reasoning that the liver is the source of desire (nutritive and reproductive), he proposed that the liver was the source of the veins, and, following a plant analogy, the larger (trunk) is the source of the smaller parts (branches) (Singer).

Another way Galen was significantly influenced by Plato was in his belief that natural health results from a balance of the soul, as argued by Plato in *The Republic*. As Plato wrote in *The Republic*,

> My own belief is, --not that the good body by any bodily excellence improves the soul, but, on the contrary, that the good soul, by her own excellence, improves the body as far as this may be possible [...] The creation of health is the institution of a natural order and government of one by another in the parts of the body; and the creation of disease is the production of a state of things at variance with this natural order. (Plato, *The Republic*)

While Plato claimed that balance led to health, Galen similarly believed that an imbalance between the three main points of the soul resulted in illness, and that it was a physician's job to maintain or restore proper balance (Boylan, "Galen (130-200 C.E.)").

In Galen's "The Art of Medicine," he explained the concepts of *krasis* (mixture), claiming that health (or lack thereof) was the result of either *eukrasia* (normal state of health) or *dyskrasia* (abnormal state of health). He claims that, "A body is healthy in the absolute sense when it is *eukratic* in the simple and primary parts from birth, and balanced in the organs compounded from these parts" (Galenus, "The Art" 165). To explain the cause of disease, he then writes that, "A body that is diseased in the absolute sense is either *dyskratic* in the *homoiomerous* parts from birth, or unbalanced in the organic parts, or both" (Galenus, "The Art" 165). If, for instance, Galen encountered a patient suffering from excess spiritedness or uncontrollable excitement, he viewed this as a result of too much blood, and would therefore restore the balance by bloodletting the patient (Boylan, "Galen (130-200 C.E.)").

Finally, in addition to Socrates and Plato, Aristotle, Plato's student, also had a tremendous impact on Galen's work as a physician. One major way Galen was influenced by Aristotle was by adopting his theory of the contraries: hot, cold, wet and dry. By combining Aristotle's theory of contraries with Plato's focus on balance, Galen began to develop his own theory that balance among the four contraries (as well as in the three major points of the soul) was also a significant contributor to health, and that by carefully observing patients and their symptoms, one could determine the particular imbalance responsible for an illness. In his work "The Art of Medicine," Galen describes the signs of many of these imbalances, providing

examples on how imbalances of the four contraries manifest themselves in the head, heart and liver, leading to different illnesses. As an example, he writes that,

> If there is a large deviation in the *krasis*, and particularly if this happens to be toward the moist, the putrefactive diseases arise in addition to those things mentioned, since what happens is that the humors are corrupted and putrefied in these people at the same time, the exhalations are larger and quicker than the inhalations, and in the pulses the systole (contraction) is rapid. (Galenus, "The Art" 201)

In this passage, Galen likely described the causes of congestion or a simple cold, causing a patient to cough or sneeze (rapid contractions, large and quick exhalations). He explained that his observations led him to conclude that the cause of this illness is due to an imbalance, specifically due to an excess amount of moisture. To counteract these imbalances, Galen believed that drugs composed of the opposite contraries could restore balance to the body. As he writes in "A Method of Medicine to Glaucon," "For opposites are cures of opposites, curbing what is excessive and reintroducing what is lacking" (Galenus, "A Method of Medicine" 385). For instance, if a patient was suffering from an upper respiratory infection (wet and cold contraries-causing mucus and congestion) a drug composed of dry and hot substances (such as certain fungi or molds) would counteract the imbalance and restore the patient's health (Boylan, "Galen (130-200 C.E.)").

Another way in which Galen draws from Aristotle's theory of contraries, is in his explanation of the genesis/development of bodies. In Aristotle's *Physics*, he writes that,

> First principles must not be derived from one another nor from anything else, while everything has to be derived from them. But these conditions are fulfilled by the primary contraries, which are not derived from anything else because they are primary, nor from each other because they are contraries [...] Everything, therefore, that comes to be by a natural process is either a contrary or a product of contraries. (Aristotle)

Galen shares this view of Aristotle's, that everything is composed of primary elements (contraries), and in his work *On the Natural Faculties*, he writes that,

> The seed having been cast into the womb or into the earth (for there is no difference), then, after a certain definite period, a great number of parts become constituted in the substance which is being generated; these differ as regards moisture, dryness, coldness and warmth, and in all the other qualities which naturally derive therefrom [...] Therefore, if you wish to know which alterative faculties are primary and elementary, they are moisture, dryness, coldness, and warmth. (Galenus, *On the Natural Faculties*)

Galen presented his views on the formation of different parts of the body, and his belief that different parts of the body (ex. veins, muscles, bones) are derived from the differences in heat, 'coldness,' dryness and moisture. He then assesses the extent to which these differences among the contraries (he considers these to be primary qualities) result in the 'secondary' qualities of different parts of the body, such as hardness, softness, lightness, heaviness, density, thickness, 'thinness,' smoothness, roughness, etc. (all of which are considered tangible distinctions) which

are then followed by the 'third qualities'- sensory distinctions (out of the five, he only refers to taste, smell, and sight) (Galenus, *On the Natural Faculties*).

Galen's views on the transformation of matter were also significantly influenced by Aristotle's work. Professor Vivian Nutton at the University College London, expert on the history of the classical tradition in medicine from Antiquity to present (with a focus on Galen), writes that, "His [Galen's] explanation of natural processes such as the transformation of matter depended on Aristotelian concepts, and he was convinced, like Aristotle, that the body had been carefully designed by a provident and purposeful creator" (Nutton 801). As Aristotle wrote in *Physics*,

> The fulfilment of what exists potentially, in so far as it exists potentially, is motion- namely, of what is alterable qua alterable, alteration: of what can be increased and its opposite what can be decreased (there is no common name), increase and decrease: of what can come to be and can pass away, coming to he and passing away: of what can be carried along, locomotion. (Aristotle)

Aristotle believed that everything undergoes constant change/"motion," and Galen adopted this view, further elaborating on it in his many works. In Galen's *On the Natural Faculties*, he argues that all matter begins in a "pre-existing state," and that as it undergoes any form of change or transformation, this is called "motion" or, in a more general sense, "alteration" (Galenus, *On the Natural Faculties*). He also notes that it is this 'motion' which is responsible for larger changes, such as growth and decay, as well as genesis and destruction. As Aristotle wrote,

> Since everything that changes changes from something to something, that which has changed must at the moment when it has first changed be in that to which it

> has changed. For that which changes retires from or leaves that from which it changes: and leaving, if not identical with changing, is at any rate a consequence of it. (Aristotle)

Aristotle believed that when something undergoes change/"motion," it becomes completely altered, leaving its prior state. In *On The Natural Faculties*, Galen reveals a similar theory of transformation, describing the process in which bread is broken down/altered upon consumption. He writes that,

> Before any separation takes place, the whole of the bread obviously becomes blood; (at any rate, if a man takes no other food for a prolonged period, he will have blood enclosed in his veins all the same). And clearly this disproves the view of those who consider the elements unchangeable, as also, for that matter, does the oil which is entirely used up in the flame of the lamp, or the faggots which, in a somewhat longer time, turn into fire. (Galenus, *On the Natural Faculties*)

Some of his contemporaries believed that (following the example of the consumption of bread) upon digestion bread appeared altered in terms of sight, taste and touch (as it has been transformed into blood) but that this change itself was merely an illusion of the senses and had not occurred in reality. Galen, however, refuted these claims and argued that the substance was completely altered and transformed into a different substance (blood), rather than merely appearing to have been altered.

Yet another way in which Galen's work was influenced by Aristotle is in his views on functions/teleology. As defined by Merriam-Webster Dictionary, teleology is "The use of design or purpose as an explanation of natural phenomena" ("Teleology"). Aristotle was known for his

emphasis on teleology, and it is also clearly reflected in Galen's works. In *Physics*, Aristotle explains his views on causation and the purpose behind everything, arguing that,

> It is absurd to suppose that purpose is not present because we do not observe the agent deliberating. Art does not deliberate. If the ship-building art were in the wood, it would produce the same results by nature. If, therefore, purpose is present in art, it is present also in nature. The best illustration is a doctor doctoring himself: nature is like that. It is plain then that nature is a cause, a cause that operates for a purpose. (Aristotle)

Aristotle believed that although some matters may appear to have been created by chance or random spontaneity, in actuality, everything was created by nature for a specific purpose or function. Adopting similar views, Galen explained in *On the Natural Faculties*,

> The outgrowth into the intestine, the shape of the inner cavities, and the like, have all been determined by a faculty which we call the shaping or formative faculty; this faculty we also state to be artistic- nay, the best and highest art- doing everything for some purpose, so that there is nothing ineffective or superfluous, or capable of being better disposed. (Galenus, *On the Natural Faculties*)

Following in the views of Aristotle, he explained his belief that every part of the body is the source of a particular activity (which he termed as a "faculty"), with everything having a specific purpose, contributing to the overall functioning of the structure (body) (Galenus, *On the Natural Faculties*). As explained by Michael Boylan,

> Behind this desire to parse parts and functions is the notion that Nature does nothing in vain (*ouden he phusis ergazetai maten*). This means that Nature would

> never allow a state of affairs to exist in which a body part had no function. All parts have functions (generally only one) and all functions are related to body parts. This principle of efficiency and simplicity guided Aristotle's biological science and, by extension, Galen's. (Boylan, “Galen: On Blood” 208-209)

This view is characteristic of Aristotle, and significantly informed Galen’s medical practice, especially concerning his dissections and attempts to better understand the purpose of each organ.

Yet another way in which Aristotle significantly influenced Galen was in his practice of combining observations with theory, in the tradition of critical empiricism. According to Michael Boylan,

> Galen began with a problem and a number of observations and sought to make sense of the seeming anomalies via his overarching biomedical principles. In this way, Galen was acting according to the mathematical training from his father and a desire to create a unified (quasi-axiomatic) explanatory system. Without observation, this could have led to *a priori* or "armchair" science. But when combined with careful observation, it leads to critical empiricism. (Boylan, “Galen (130-200 C.E.)”)

This critical empiricism and habit of filling in the ‘gaps’ from his observations with theories is apparent in many of Galen’s works. As he writes in “The Art of Medicine,”

> The defects involving size, conformation, number and position are as follows: those that befall the senses are easily recognized, whereas of those that do not befall the senses, some are difficult to recognize and some are unrecognizable [...]

> It is however, necessary to attempt a diagnosis, as far as possible, of the goodness and badness of these parts, if not with certain knowledge then by an educated guess. (Galenus, "The Art" 227)

Distinguishing him from many of his contemporaries, Galen's combination of philosophy and medical dissections/observations allowed him to understand the importance of filling in the gaps of the unknown (as is so often the case in medicine) by taking educated guesses based on logic and reason.

Compared to 21st century physicians, Galen was clearly restricted in his access to certain knowledge and limited in his practice. In spite of this, his discoveries and advancements to the medical field are remarkable. The clear impact of philosophy on his work reveals the considerable influence of Greek culture and the lasting impression it left on the Western world. Although the Roman Empire eventually conquered the territory of Ancient Greece, the Greek culture persisted and continued to spread (evolving with time) under Roman control, manifesting itself in new ways and forming the basis of many Western ideals. Galen's work is a representation of this, as he was so clearly impacted by philosophers from Classical Athens. Committed to only two things in life- relieving the pain and suffering of humanity and pursuing higher medical knowledge and excellence- Galen has remained a role model for all physicians, past, present, and future.

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