

REFUTATION OF THE CHARGES OF COWARDICE MADE AGAINST GALEN

By JOSEPH WALSH, M.D.

PHILADELPHIA, PA.

NUMEROUS and successful investigations in anatomy and physiology elevated Galen to a unique pedestal. While agreeing on this eminence, and rightly so, modern medical historians also agree, though wrongly, in making him out a coward. This has not only reflected an unfavorable light on him as a man to be imitated, but has tended to impair his standing as a scientist. With the evidence before us, that his life was a manifestation of resolution and courage, it is a satisfaction in this year, the eighteenth centenary of his birth¹ to refute the slander.

He has been accused of cowardice on two counts: First, that he ran away in a discreditable fashion from an uprising associated with, or endangering, his native city Pergamum in Asia Minor;² second, that he ran away from a pestilence in Rome. For a complete understanding of his conduct in both instances, a little sketch of his life and times is necessary.

Delicate in childhood (vi, 309)³ Galen took the studies commonly pursued in the elementary grades from his father, but at the age of fourteen we find him in attendance at the philosophical school (v, 41 et seq.). He entered medicine in his native city Pergamum at the age of seventeen still a little delicate (vi, 309, 755), and finished at twenty-one. Shortly before, his father died (vi, 756) and left him such a competence that he never knew the need of money (v, 44 et seq.; xiv, 623).

Enthused by personal acquaint-

anceship (xix, 16) with some of its well-known medical men, he went to Smyrna (ii, 217; v, 112) fifty miles to the south, and took two years of a post-graduate course. Still dissatisfied with his knowledge, and with the repute of the University of Alexandria in mind, he made the six hundred mile journey and spent five years under the influence of the world renowned Egyptian Museum or Temple of the Muses (ii, 217; vii, 635; x, 53 et seq.; xvii, 806).

Four of the five summers in Alexandria he suffered from an intermit- tent fever, due he thought to overwork and improper eating, though possibly a continuation of the condition which made him delicate as a child.

He returned home in the summer of the fifth year ill with what he diagnosed as an abscess between his liver and diaphragm (vi, 756), but what I believe was a right pleural effusion, because he became well on bleeding as suggested to him by Aesculapius in a dream (xi, 314; xvi, 222) apparently in the celebrated shrine of that god in Pergamum.⁴

After recovery he entered on his career at the age of twenty-eight (xiii, 599), having spent eleven years in medical schools. He was a brilliant and industrious student, and had profitted by every hour of this protracted course. As a consequence, within a year his repute was such that he was appointed to the important post of physician to the gladiators: important to him on account of its prominence and the associated practice of surgery, important to

subsequent ages because it gave him a well-equipped operating room and animals without number to dissect and experiment on.

In Smyrna he had studied under Pelops, one of the two or three best known medical teachers in the empire. In agreement with his contemporaries the great Pelops incorrectly taught that the diaphragm alone controlled respiration and that the expansion of the chest walls was produced by the expansion of the lungs (II, 657). From frequent dissections Galen early recognized the additional action of the intercostal muscles. Taking up this investigation into the mechanics of breathing he learned so much that almost nothing remained to be added.

He described for us the diaphragmatic muscle, its innervation, and what happens when one and both phrenic nerves are cut. He was the first to note the obliquity and decussation of the fibers of the intercostal muscles and to explain the reason therefor, namely, that one part was active in the expansion, the other in contraction of the chest walls. He sectioned the nerves to the intercostals and watched the action of the diaphragm alone. Finally he showed the influence of the thoracic muscles (II, 660-680; III, 409 et seq.; IV, 465 et seq.).

The importance of this magnificent piece of work can scarcely be overestimated, yet while pursuing it he lighted on another discovery much more dramatic and interesting: I am referring to the nerve of speech.⁵

Sectioning one at a time each of the nerves entering the thorax to learn if it had an influence on breathing, he cut the recurrent laryngeal, and to his amazement the pig previously squealing became silent. Repeating

the experiment on other pigs, and then on many other domestic as well as the wild animals of the amphitheater, like the lion, and even the long-necked crane and ostrich⁶ with the result that their peculiar cry or utterance was invariably lost, he realized he had the nerve of speech which if cut or interfered with would prevent man from talking (II, 218; IV, 278; XIV, 629 et seq.).

This not only meant the discovery of the function of the recurrent laryngeal nerve, but practically the discovery of the function of the brain, since it was commonly taught to be for the cooling of the blood. The popular argument backed by the authority of the philosophers Aristotle, Chrysippus and Diogenes of Babylon was: we talk with the vocal cords, the impulse to their movement comes from the lungs, intelligence must be some place neighboring, and probably in the heart (V, 241).

In fact later in Rome, while he was promulgating this discovery, his opponents brought forward what appeared to them an absolutely clinching comparison (V, 245):

"Urine," they said, "is passed through the urethra by the compression of the bladder wall; words are passed through the larynx by the compression of the lungs,—it would be as logical to say that urine comes from the brain as that speech does."

Just as he had concluded these two remarkable investigations on the mechanics of breathing and the function of the recurrent laryngeal nerve, and in the midst of the peace and quiet of his charming native city was pursuing others of equal importance of which we will speak later, there was an uprising of the Parthians

(xiv, 622, 647, 648) under their new and enterprising ruler Vologeses III.

Proceeding from the interior of Asia the Parthians advanced to Elegia in Armenia where they annihilated a Roman Army of about 11,000 men⁷ marching to intercept them. Elegia is 800 miles east of Pergamum, but with the principal Asiatic contingent of the Roman army destroyed, Asia Minor naturally became alarmed. The barbarians, however, instead of advancing on the cities of Pergamum, Smyrna, Ephesus and Rhodes, turned their steps southward toward Antioch, the Eastern Capital of the Empire,⁸ and never came within 700 miles of Pergamum.

The uprising took place in March 161 A.D.,⁹ and Vologeses' first success was practically speaking also his last, for although he actually moved his army almost to the walls of Antioch and took some of the lesser cities on the way, he got no further. In the meantime legions with more competent generals from Moesia, Pannonia, Noricum, Rhetia, Gaul, Britain, Italy and Africa began to pour by land through Asia Minor, and by boat through Antioch, and before a year had passed the danger to Pergamum and the other coastal cities was removed.

It was about six months later, in other words, somewhat more than a year and a half after the war began, and six months after the crisis had subsided that Galen made up his mind to visit Rome.¹⁰ Pergamum was gaining in courage daily with the constant success of the Imperial troops, but conditions were far from normal. The activities at the beginning of the revolt in which he was glad to participate, had settled down to an established routine requiring but little

intelligence. Their continuance, however, made it difficult to carry on other work, especially his beloved

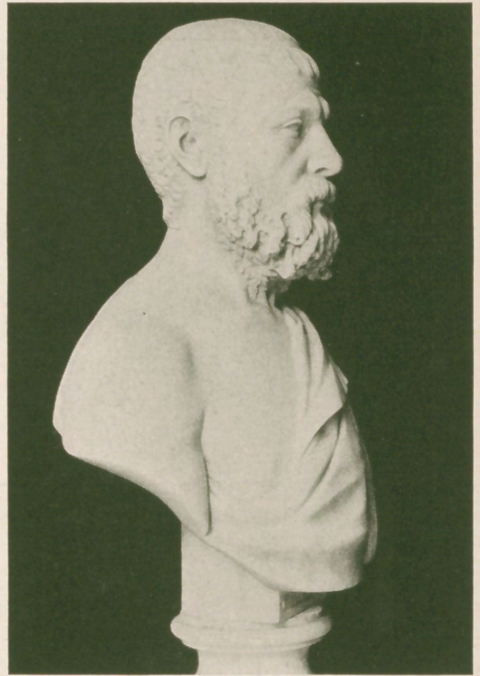


FIG. 1. PORTRAIT BUST OF GALEN IN PHILADELPHIA COLLEGE OF PHYSICIANS.

research. Now was the time to learn what was being done in the much talked of philosophical and medical schools of the Capital and he proceeded to take advantage of it. The very fact that he intended (xiv, 622) to return and did return, shows that he did not leave under discreditable circumstances.

In spite of the fact, however, that Vologeses and his army never came within seven hundred miles of Pergamum, a thirty-five day march, it might still be asked why Galen did not enlist? To answer this requires only the slightest comprehension of military conditions at the time.

The standing army of the Empire was composed of thirty legions of Roman soldiers, which together with the auxiliaries impressed from the provinces amounted to over 300,000

fighting men.¹¹ Some of these were stationed in Italy, particularly in the Capital, but the great majority were exempted by law, even in great emergencies. Among these were officials of government, priests, physi-



FIG. 2. PART OF THE ROMAN EMPIRE AND ITS SURROUNDINGS TO INDICATE THE PLACES MENTIONED IN THIS ARTICLE.

distributed over the various frontiers. On every side beyond the Roman boundaries were barbarians, and the frequency of revolt can be seen from the fact that during the nineteen-year reign of the then Emperor, Marcus Aurelius, there was an uprising at different times of the *Britains,¹² Marcomanni, Quadi, Jazyges, Germans, Sarmatians, *Costobocci in Greece, *Egyptians and Parthians, not reckoning the rebellion of his most competent general in Antioch, who set himself up as Emperor. If an insurrection signified one was conscientiously bound to enlist, almost constant service would be the result, and it would be more satisfactory to become a professional soldier at the beginning. Even when an outbreak was critical it simply meant the temporary transference to the point of danger of legions from elsewhere.

On account of the frequency of war and the necessity sometimes of conscription, various professions were

distributed over the various frontiers. On every side beyond the Roman boundaries were barbarians, and the frequency of revolt can be seen from the fact that during the nineteen-year reign of the then Emperor, Marcus Aurelius, there was an uprising at different times of the *Britains,¹² Marcomanni, Quadi, Jazyges, Germans, Sarmatians, *Costobocci in Greece, *Egyptians and Parthians, not reckoning the rebellion of his most competent general in Antioch, who set himself up as Emperor. If an insurrection signified one was conscientiously bound to enlist, almost constant service would be the result, and it would be more satisfactory to become a professional soldier at the beginning. Even when an outbreak was critical it simply meant the temporary transference to the point of danger of legions from elsewhere.

cians,¹³ philosophers, sophists and several other varieties of teachers. And all of them accepted their prerogative, except of course, those who wished to enlist in the regular army. For instance, the poet Lucian, who was only five years older than Galen, was at the time teaching in southern France. His parents lived in Samosata, on the line of march from Elegia to Antioch. Rushing across the continent to his native city he removed his relatives to Athens, but he did not enlist. His courage, however, has never been called into question, since standing almost alone in the face of intense superstition this classical poet atheist poked fun at all the religions of the world.

This rebellion against the Roman arms took place while Galen was in the midst of a further piece of work on the differentiation of motor and sensory nerves, and their location in the spinal cord (II, 684). In its later completed form this investiga-

tion stands the test of today, and was not added to for 1600 years till the work of the celebrated Charles Bell in the nineteenth century. This research was now brought to a standstill.

With his broad scholarship he could not help but recognize he was bringing to light scientific knowledge of value to all future ages, and was accomplishing more in the extension of biology than all the rest of the world put together. Important as he had a legitimate right to deem himself he, nevertheless, remained in Pergamum for a year and a half, remained till all danger was passed and Vologeses was retreating with a Roman army of about 75,000 men¹⁴ in active pursuit.

He then, as I previously stated packed up and retired to Rome (xi, 299; xiv, 648). He went not into hiding but to the actual seat of government from which the war was being conducted. Finding it difficult to continue his research, he went to the Capital with the idea of furthering his scientific knowledge by association with the intellectual lights about whom he was constantly hearing. On conclusion of hostilities when conditions became normal, he returned to Pergamum with the intention of taking up again the interrupted work. His continued regard for his native city, as manifested in later actions, shows that his reception was not as a coward or deserter, but as a distinguished citizen.¹⁵

Official Rome was at the time an Academy with the saintly Marcus Aurelius as head master, and at his feet consuls, prefects and senators earnest in their pursuit of virtue and philosophy. Into this Academy burst the brilliantly educated Galen, with a virtue equal to that of the renowned Emperor, with a biological knowledge

and new discoveries in physiology which intrigued the philosophers, and with a prejudice against sectarianism



FIG. 3. MARCUS AURELIUS, THE MOST UPRIGHT AND CONSCIENTIOUS OF ROMAN RULERS. HE WAS A FRIEND AND PATRON OF GALEN, AND GAVE HIM MEDICAL CHARGE OF HIS SON COMMODUS, THE HEIR TO THE THRONE, WHILE HE WAS SIX HUNDRED MILES AWAY FIGHTING THE GERMAN BARBARIANS.

which antagonized the physicians of the sectridden Capital.¹⁶

As in Pergamum, on his return from Alexandria, so now in Rome; within one year he was the most talked of man in the city. And the diversion produced by the opposition of the medical men to his new discoveries made half of officialdom, and three-quarters of the physicians forget for days at a time an actual war was waging on the frontier. In front of the book-stalls on the Sandalarium just to the north of the forum, in front of the apothecary shop on the Sacra Via to the east of the Forum, in the huge and magnificent baths of Trajan where they went to exercise and bathe each afternoon, and finally in the Temple of Peace which was the recognized Assembly Hall of Physicians, the medical men aided by the sophists wrangled with

Galen aided by his pupils and the philosophers, until there was scarcely an intellectual person in the Capital,



FIG. 4. LUCIUS VERUS, CO-EMPEROR WITH MARCUS AURELIUS AND COMMANDER OF THE ROMAN ARMY, WHICH BROUGHT THE GREAT PEST TO ROME AFTER GALEN HAD LEFT.

who was not taking sides, and until the very tufa blocks of the pavements must have been saturated with the dissensions.¹⁷ And everywhere people smiled with amusement when they recollected that the Assembly Hall of Physicians was euphemistically called the Temple of Peace.

The physicians of Rome were at the time divided into the sects of dogmatists, empirics, methodologists, Thessalian methodologists, pneumatists, eclectic, Hippocrateans, Praxagoreans, Herophileans and Erasistrateans. It would appear that in Pergamum there were practically only two sects, dogmatists and empirics, with a small sprinkling of pneumatists. It is also likely Galen himself so dominated medicine in his native city that almost all followed his lead.

There were two sects in Rome which he properly and constantly condemns, the methodologist, and with added vehemence the Thessalian

methodologist. The first he condemned principally for its silly notion that all diseases could be reduced to two, namely, diseases with a constriction and with a relaxation of the pores of the body.

The Thessalian methodologists went a broad step further. Since all diseases could be reduced to two, six months were all that was necessary for the study of medicine, and this school was turning out physicians right and left who six months before had been barbers, weavers, shoemakers and clerks. In view of Galen's conviction that it was necessary for him to study eleven years, it is not difficult to imagine his feeling toward Thessalianism. And with a courage that cannot be too highly commended, considering how numerous this sect was in Rome, he denounced it day in and day out, and with Thessalians within hearing called their founder, who in his entire behavior is strongly reminiscent of certain founders of sects today, impudent, insolent, stupid, barbarous and asinine (x, 7 et. seq.).

Raging with passion they retaliated that his remarkable prognoses were made not through a knowledge of medicine, but an evil knowledge of divination, that his wonderful cures were made not by drugs, but by magic. Sorcerer they called him, and magician (xiv, 615), but it was not possible to call him coward.

Not a few commentators, having only Galen's addresses in mind, without taking into account the educational conditions he was berating, consider he went greatly to excess. With the high-class empirics and methodologists, however, tainted with a skepticism,¹⁸ or more nearly a nihilism in regard to learning and research, and the low-class methodolo-

gists insisting that all medicine could be learned in six months, excess was impossible. At most Galen's attitude was the natural extreme of the reformer who in his anxiety to correct is unconsciously carried beyond the goal.

Confronted with the idea that knowledge was a bauble and education futile, that research in anatomy and physiology added nothing to medicine, he pleaded day after day for study, and then more study, for experiment, and then more experiment.

From this time comes the sentiment which he frequently repeats: The road of investigation is long and arduous, but leads to truth; the road of assertion is easy, but leads nowhere.¹⁹

The friends who stood by him in these discussions, without whose influence he would possibly have been assassinated by the Thessalians, were Barbarus, the uncle of the Co-Emperor Lucius Verus; Sergius Paulus, one of the two consuls; Flavius Boëthus, an ex-consul, and later appointed Governor of Palestine; Claudius Severus, one of the philosophical teachers and the closest intimate of Marcus Aurelius; and Adrian, at the time assistant to the philosopher Boëthus, and later the most popular orator in the Roman Empire.⁵

If Galen left Pergamum under discreditable circumstances, especially under the stigma of cowardice on account of failure to enlist in the war, he would assuredly not have chosen as the place of his exile the Capital of the Empire, from which the war was being conducted; he would assuredly not have put himself into prominence by opposing most of the Roman physicians, many of whom had the ear of the court and the authorities. Laboring under the odium

of deserter he would not have been received and extended the hand of friendship by the highest imperial officials.

Few men when actually put to the test have the courage to sacrifice worldly interests to ideas. Galen not only sacrificed the friendship of the medical men, among whom he hoped to promulgate his great discoveries, but even put his life in jeopardy at the hands of the low-principled Thessalians. For in spite of his friend Eudemus' assurance that there were no depths of villainy to which the sectarians in Rome were not willing to descend, even murder (xiv, 623), since ten years before a physician acting similarly had been thus disposed of, Galen stopped only for a time his antisectarian addresses, and then continued them till he died.

We know of twenty-three¹⁷ articles from his pen against sectarianism, the majority transcripts of lectures delivered in Rome. In these he minced neither words nor phrases. When his opponents became vituperative he followed suit, not dissimilarly to Origen, Tertullian, Sylvius, Vesalius, Pasteur, Metchnikoff, Roosevelt and innumerable others.

Yet the enmity of the physicians preyed on his mind, and after his powerful friend Boëthus left the Capital to take up his governorship of Palestine, Galen deemed it wise to cease temporarily participation in public discussions and devote himself solely to practice. He also renewed his resolve to return to Pergamum as soon as conditions became sufficiently normal to take up again his research (xiv, 622, 624).

This was his state of mind when in July, 165, about six months before he left Rome, while wrestling in the

gymnasium of the bath, he suffered an upward dislocation of the acromial end of the clavicle (xviii, 401). Both he and his surrounding friends, among whom were several physicians, as well as the wrestling master, believing it a dislocation of the head of the humerus downward, endeavored to reduce it. Before the nature of the injury was recognized such damage had been done to the tissues by their efforts, that he had a long and painful convalescence.

Embittered by the enmity of the medical men, disconsolate at what he considered his failure to promulgate the new discoveries of which he was so proud, physically and mentally exhausted by the foolishly tight bandage in which his arm had been slung over forty days, ennuied on account of his non-participation in public affairs after giving up visiting the Temple of Peace, he looked forward day after day to the time when he could end the bickering he detested and return to the research he loved so much.

Eventually the day came. The war was finished. The articles of peace were signed. Lucius Verus, the Commander, was on his way back to Rome. Full of elation at the prospect, he was dreaming of departure when a new complication arose, highly complimentary in one way, mentally upsetting in another.

His friends the philosophers, many of them officials or intimates of officials about the court of Marcus Aurelius suggested him for a government position (xiv, 648).²⁰ Flattering though it was Galen was in no humor to accept, and he requested they do nothing further until he saw and talked with them again. Convinced after consideration that they would pay no attention to his wishes, but

would have him appointed regardless, he packed up hastily and made overland for Brindisi. To several knowing of his departure, he said he was in need of a rest and was going to Campania (the country around the Bay of Naples). He did not, however, stop at Campania, but went through to Brindisi and took the very first vessel crossing the Adriatic. From the brief history here given, it must be evident that the thrill of the boat as it was loosed from the wharf produced the first real relief from weariness and vexation of spirit experienced over many months.²¹

This departure, he definitely states in a work written thirteen years later, took place shortly before the Commander-in-Chief Lucius Verus returned from the East. Quoting his exact words we read (xiv, 648, 649): "When I understood the war was ended I set out immediately from Rome . . . Not long after Lucius Verus returned." Since the triumphal entry of this Commander and his victorious army into Rome occurred in March 166,²² it is evident Galen withdrew before this time.

Unconsciously to the departing Pergamite the glance he threw back at the gradually receding Capital as he sped down the Via Appia to Brindisi, was the last view by a historical personage of Rome at the height of its splendor²³ for Lucius and his all-conquering army brought back something else in addition to victory.

Accompanying them along the line of march from Babylon²⁴ in Central Asia through Syria, Asia Minor and Greece,²⁵ and even into the Capital itself stalked the ghastly figure of pestilence. Seeded along the way it spread throughout the Empire and produced a holocaust.

This is the epidemic which the historian Niebuhr associates in a causal fashion with the initiation of the decline and fall of the Roman Empire. It is considered to have carried off twenty-five million of its hundred million population.²⁶ Becoming known soon after as the Great Pest, it furnished a landmark in the life of every citizen, an unforgettable time from which to date all happenings. It broke out in Rome sometime between the spring of 166 and the spring of 167, but all authorities agree that it was at least after Lucius Verus' return.²⁷

After narrating in the work written thirteen years later that he left before Lucius Verus and his army returned from the East (and therefore before the pest broke out in the Capital), Galen states in another work written thirty years later (xix, 15), "having sojourned three years in Rome, the great pest beginning, I hastily set out from the city, going eagerly to my native country."²⁸

This sentence is one of the most frequently quoted in biographies,²⁹ scarcely any biographer, even in the shortest sketch³⁰ failing to notice it, and all insist that he ran away from the epidemic. In the light of our actual knowledge of the circumstances, it is quite amusing to read some of the accounts of his departure from Pergamum and his later departure from Rome. It would be even more amusing, except they have proved so tragic for the reputation of one of the most courageous of physicians, and are the cause of some of the present-day ill-feeling against him.

From what we know, the statement is plain: he remained three years in Rome, he hastily and eagerly left because he was weary of the Capital

and its wranglings, and wished to avoid refusing the public office his friends were soliciting for him. He left at the time the great pest was beginning, that is at the time it was spreading over the Empire, though it had not yet reached Rome. That it was coming to Rome he had no more idea than we had that the influenza epidemic in Europe in 1918 was coming to the United States and would cause its desolating havoc. The statement could not be plainer. He left Rome where the epidemic had not yet begun and no one expected it, and actually went into the regions where it was already a menace.

Unacquainted with the surrounding circumstances, his detractors interpreted his statement to mean: Having sojourned three years in Rome, the great pest breaking out I hastily and eagerly left the city in order to avoid it. Nothing can be further from the truth, and the previous narrative, as well as the actions of his entire life can be marshalled against it.

In an earlier part of this article I showed Galen standing up against the medical profession of Rome in the endeavor to inculcate ideas necessary to the progress of medicine. His display of courage is almost unique since he even went so far as to jeopardize his life at the hands of the uneducated and unprincipled Thessalians.

In addition he was a pious Pagan, and an ardent follower of stoicism which demanded the most rigid uprightness, regardless of danger or harm to self. His life was consecrated early to Aesculapius, and to the end of his days he never wavered in his devotion. Almost no work of importance came from his pen without containing the name of this patron and an expression of his homage. No

matter to what friend dedicated, it was inscribed also to the god of medicine. And not without results. In his pagan piety Galen saw the hand of Aesculapius helping him over rough and perplexing places many times (III, 812; X, 609; XI, 314; XVI, 222; XIX, 19).

In his work on "Hygiene," written about the age of forty-six (176 A.D.) he says (VI, 308): "I have never shirked duty even when hard, but have done my utmost, watching patients when necessary even throughout the night, sometimes for their sake, though sometimes also merely for what I could learn."

About the age of sixty-three he tells us (v, 42 et seq.)³¹ of the virtues enjoined by his father forty-four years before: Justice, temperance, fortitude and prudence; to despise honor and glory, to seek only truth and to fear no danger. These I have followed, he says, to the present day. And a study of his career brings forth no reason for doubt.

In confirmation we know that two and a half years later, in the fall of 168 A. D., when the epidemic was raging among the troops on the Ger-

man frontier, where a new war was in progress, Marcus Aurelius who was in command sent to Pergamum for Galen. Two reasons naturally occur to us for this action, the high regard the Emperor had for his work in Rome, or special success in the treatment of the pest in Asia.

Shortly after his arrival at the Camp, a very severe winter setting in, the army with the physician in its train returned to the Capital. Here the Emperor put the Pergamite in charge of the little Prince Commodus for the next six years, while he himself was six hundred miles away fighting the German barbarians.

No ruler in history surpasses Marcus Aurelius in love of virtue, resolute courage and devotion to duty. It is unthinkable that he would engage as a caretaker for his beloved son a physician so deficient in character and philosophic stoicism as to prove a deserter in time of danger. No! This appointment alone demonstrates the esteem in which the Pergamite was held in the Capital, not only for his knowledge of medicine, but for his qualities as a man.³²

REFERENCES

1. He was born in September, 130 A. D. See, WALSH, J. Date of Galen's birth. ANN. M. HIST., n. s., 1: 378-382, 1929.
2. In spite of the fact that the uprising Galen speaks of he very definitely describes as the great Parthian War of the period, it is astonishing how many modern detractors got the idea it was a local sedition or revolt in the town of Pergamum itself.
3. The figures in parenthesis refer to the volume and page of the handiest and best known edition of Galen's works, namely, Kuhn's "Galen Opera Omnia," Leipzig, 1821.
4. In the hospital-like wards of this shrine, the Mecca for the pious sick of the empire, could be found statesmen, philosophers, sophists and merchants awaiting the heaven-sent directions of the god. The broadest education, even of scientific investigators like Galen, deemed the cures too frequent to be doubted. Impressed as he was, the fact of his return from Alexandria at this time and the dream make it likely that finding himself seriously ill, he came home for the express purpose of visiting the temple and believed himself rewarded.
5. PRENDERGAST, J. S. The background of Galen's life and activities, and its influence on his achievements. *Proc. Roy. Soc. Med.*, 23: 1131-1148, 1930; also

- WALSH, J. Galen's discovery and promulgation of the function of the recurrent laryngeal nerve. *ANN. M. HIST.*, 8: 176-184, 1926.
6. SIMON, M. *Sieben Bucher Anatomie des Galens*. Leipzig, Hinrichs, 1906, 2: 78 and 188.
 7. Paul Barron Watson in "Marcus Aurelius Antoninus," N. Y., Harper, 1884, p. 63, says an entire legion which would be about 7,000, or with its auxiliaries, about 11,000. Charles Merivale in "History of the Romans," N. Y., Appleton, 1875, 7: 455, says one legion. B. G. Niebuhr in "Lectures on the History of Rome," Ed. 2, London, Taylor, Walton and Maberly, 1849, 3: 250, says one or two legions.
 8. WATSON. *Op. cit.*, pp. 64, 139.
 9. Watson, *op. cit.*, p. 63, says immediately after the accession of the Co-Emperors Marcus Aurelius and Lucius Verus which was on March 7, 161, and pp. 150, 151, that Lucius Verus, the Commander-in-Chief of the Roman forces returned in March, 166, after the war was finished having been absent from Rome nearly five years. Niebuhr, *op. cit.*, p. 250, states, commencement of reign of Marcus Aurelius. Merivale, *op. cit.*, p. 455, asserts, the Parthians seized the moment of a change in the succession of Emperors.
 10. He tells us he came to Rome at the age of thirty-two (xviii, 347); he tells us again that he remained in the Capital three years (xix, 15) and left it not long before the Emperor Lucius Verus arrived from the East (xiv, 649). Lucius Verus made his triumphal entry into Rome in March, 166. Allowing anything within three months to be included in Galen's term "not long before," then he left about, or after January 1, 166; and if he remained in Rome three years, he arrived about January 1, 163, or more than a year and a half after the Parthian War had begun.
 11. Gibbon says 375,000 "History of the Decline and Fall of the Roman Empire," N. Y., Burt, I: 236.
 12. Those marked with an asterisk were quite insignificant, but the remaining six were very serious.
 13. Since there was no medical practice act in our sense of the term, anyone feeling so inclined could call himself a physician. Not all such, however, enjoyed the privileges of freedom from conscription, immunity to certain taxes, etc., but only a well-defined limited number in each city or town holding specified public offices. These corresponded more or less with our health officials who watched over sanitation, took care of the poor, free or for a small fee, or were sufficiently highly regarded to hold the positions of physician to the gladiators, dramatic theaters, temples, vestal virgins and certain public associations. Unnecessary to say with the privileges were associated definite obligations. Galen was exempt as physician to the gladiators, but also likely as a teacher.
 14. WATSON. *Op. cit.*, p. 142.
 15. This is particularly shown by the fact that though he was afterwards called by Marcus Aurelius to the German War, and accompanied him from Aquileia to Rome where he remained ten years, he did not remove his library to the Capital (xix, 34), since he still desired, and expected to return again to his native city.
 16. Physiology, and even anatomy, belonged at the time to the study of philosophy rather than medicine. It is on account of accomplishments in these branches that he became known as a philosopher as well as physician. The medical men rose against him not only on account of his antisectarianism, but because he insisted on making anatomy and physiology a requirement in the study of medicine. It may be said, though the majority of physicians were opposed to him, he had a small following, and though the majority of philosophers were friendly, a few were not (xiv, 650).
 17. WALSH, J. Galen clashes with the medical sects at Rome. *M. Life*, 35: 408-443, 1928.
 18. PATRICK, M. M.: *Sextus Empiricus and Greek Skepticism*. Cambridge, Deighton Bell & Co., 1899; also *The Greek Sceptics*, N. Y., Columbia Univ. Press, 1929.

19. This generalization is expressed by Galen in almost every book of his "Dogmas of Hippocrates and Plato," and the "Use of the Parts." Succinctness not being one of his virtues, as is shown by his twenty-one volumes of literary legacy, it is always expressed at great length and not in my epigrammatic form.
20. He gives us no idea as to the nature of this position. Archiater (corresponding with that of our Surgeon-General) has been suggested, but this is doubtful.
21. Speaking to his friend the peripatetic philosopher Eudemus, Galen says (xiv, 622):

What I have resolved you have often heard, namely, to make in Rome only a brief stay, and when the revolt in my fatherland comes to an end depart in order to avoid further association with these unscrupulous rascals [meaning the Roman physicians].

Later in connection with a mention of the Emperor Marcus Aurelius, he tells us (xiv, 647): "At this time Lucius Verus was absent from the city on account of the Parthian War, which was being carried on by Vologeses." The Co-Emperor Lucius Verus was Commander-in-Chief.

Still later he states (xiv, 648):

Understanding the desire [of my friends] in regard to the honor they were soliciting for me, and fearing lest their action would prevent my return to Asia, I asked them to defer it for a time. When I learned that the war was ended I set out immediately from Rome going to Campania. I proceeded thence to Brindisi where I resolved to take the first ship going either to Dyrrhachium or to Greece, fearing that some of my friends in power, or even the Emperor himself, hearing of my departure, a fugitive as it were, might send an officer to order my return. After one day in Brindisi I sailed to Cassiope [the principal city on the Island of Corfu, midway between Brindisi and Greece] . . . Not long after Lucius Verus returned.

Comparing these three quotations, it is evident from the first that he left Pergamum on account of a revolt, and from the other two that this revolt was the Parthian War begun by Vologeses, the ruler of the Parthians. From the first and third it is evident he left Rome on account of the enmity of the physicians, and left hastily to avoid the official position about to be thrust on him.

22. Watson, *op. cit.*, p. 151, says "towards the end of Winter 166," which would make it at least not later than March.
23. On Galen's return three years later in the cortege of Marcus Aurelius the decline was already in progress, and from this time it sank till the period three centuries later when it had become a wilderness though a wilderness of marble, with only 500 people within its almost totally demolished walls (Procopius quoted by Gregorovius, *Rome in the Middle Ages*, George Bell & Sons, 1894, 1: 433).
24. Capitolinus (cited by Watson, *op. cit.*, p. 158) tells us the epidemic began in Babylon, where one of the Roman soldiers broke open a golden casket in the Temple of Apollo, and there arose from it an exhalation producing the plague, which spread at once through Parthia and the entire world. He goes on to say that the disease was an infliction of the gods as retribution for the General Avidius Cassius' breaking his sworn promise to the citizens of Seleucia when they surrendered.
25. NIEBUHR, *Op. cit.*, p. 251.
26. Merivale, *op. cit.*, p. 463, says "it so devastated the whole of Italy that villas, towns and lands were everywhere left without inhabitant or cultivation, and fell to ruin or relapsed into wildernesses." An epidemic which historians believe to have been the same disease returned twenty-two years later (189 A. D.) during the reign of Commodus, causing a loss of life not dissimilar. The two visitations are sometimes considered as one epidemic, and it is probable the twenty-five million deaths constitute the sum of both.
27. Simonde de Sismondi, "Rome," London, Longman, Rees, Orme, Brown, Green & Longman, 1835, 2: p. 203, states that the pest was brought by Lucius Verus from the East. Eutropius (trans. by Rev. John S. Watson, London, George Bell & Sons, 1902, p. 510) says it arose after the victory over the Parthians. Niebuhr, *op. cit.*, p. 251 asserts: In A. D. 167 the real oriental plague was carried into Europe by the army returning from the Parthian

War, and spread all over the western world, Asia Minor, Greece, Italy and Gaul. Watson, *op. cit.*, p. 158 says, the pest broke out in 166, not indicating whether he means in the East, or in Rome, though he possibly means the latter. J. B. Bury "History of Rome," New York, Harper & Bros., 1893, p. 541 declares "the plague was carried to the West by the legions who returned with Verus."

Even better evidence than any of the foregoing appears to me the fact that the triumphal procession of Marcus Aurelius and Lucius Verus in the spring of 166 A.D. was one of the most elaborate (Watson, *op. cit.*, p. 151) ever seen in the Capital. It is scarcely possible this could be so with a great epidemic in progress, and hence it must have begun later.

Merivale, *op. cit.*, p. 463, affirms, "it was still raging when the emperors left Rome for the war against the Germans in 167," which would point to its beginning late rather than early in 166.

28. This statement is made in a catalogue of his works which he compiled at the age of sixty-eight on the request of a favorite pupil. He is speaking of the books written in Rome, and then of the later work he did in Pergamum. At the conclusion of the quoted sentence there is a period followed by the word *μηδενι* and then a lapse in the text succeeded by a change of subject. It is useless to speculate whether or not this statement was explained in the lapsed part, because his pupil Bassus knew all the circumstances as well as we do, or even better, without explanation.

29. CHARTIER, R. *Vita Galeni in the Charteriana edition of Galen's Works*, Paris, 1638; NEUBURGER, M. *History of Medicine*, tr. by Ernest Playfair, London, 1910; FIGUIER, L. *Vies des Savants*, Paris, Hachette et Cie, 1870; SINGER, C. *The Evolution of Anatomy*, N. Y., Knopf, 1925; and WRIGHT, J. *The Man Galen and His Times*, *New York State J. Med.*, 114: 557-562; 677-682, 1921.

30. HUTCHINSON, B. *Biographia Medica*,

London, Johnson, 1799; ROBINSON, V. *Pathfinders in medicine, Galen and Greek medicine. M. Rev. Rev.*, 18: 775, 1912, and THORNDIKE, L. *Galen, the man and his times. Scient. Monthly*, 14: 83-93, 1922.

31. For the time at which his various works were written see Johannes Ilberg, *Ueber die Schriftstellerei der Klaudios Galenos*, *Rheinisch. Museum f. Philol.*, 44: 207, 1889; 47: 489, 1892, 51: 165, 1896; 52: 591, 1897.

32. Opinions in regard to the nature of the Great Pest are at variance. Since Galen followed a special classification of diseases corresponding to the existing knowledge, his description is insufficient for accurate diagnosis, though he mentions it innumerable times and treated many cases. The reason is easily explained.

On coming to Rome he found the commonest classification to be that of the Methodologists who divided all internal diseases into two, *strictum* and *laxum*, diseases due to the minute canals of the body being too constricted or too relaxed. This he was unwilling to tolerate and argued against it throughout life. With the desire for simplicity in the air, however, the most he could accomplish was improvement. He separated many diseases, yet continued to include a variety of others under special heads.

Under the classification "Ulcers of the lung" he included tuberculosis, abscess, pneumoconiosis, bronchiectasis and all conditions associated with protracted cough and expectoration, especially if they manifested hemoptysis. Some cases of the pest showing blood-spitting, he gives us in a discussion of pulmonary ulcers a description of two (x, 361 and 367). From these we derive the following symptomatology:

Pustules appeared over the whole body accompanied by fever and sometimes by vomiting and diarrhea. If the pustules broke, which occurred about the ninth day there was a better chance for recovery. Involvement of the respiratory tube associated with soreness, cough and expectoration of little crusts about the tenth day some-

times occurred and these cases likewise showed a good prognosis.

In another place (III, 186) he also mentions gangrene of the feet as an occasional accompaniment.

Again in a discussion of drugs (XII, 191) he tells us:

During the great pest which showed the same characteristics as that memorialized by Thucydides, practically all the patients who used this remedy [Armenian bolus which he describes, XII, 189] became rapidly well; the remainder who derived no benefit gradually succumbed because they likewise found nothing else capable of helping them. Hence we may conclude that when it was not effective the patient was incurable.

It is popularly believed the Thucydidean pest was smallpox.

Osler in "Principles and Practice of Medicine," N. Y., Appleton, 1909, p.

112, believes the Galen epidemic was smallpox; Councilman, in Osler's "Modern Medicine," Phila., Lea Bros., 1907, possibly smallpox; Immermann in Nothnagel's "Encyclopedia," Phila., Saunders, 1902, denies it was smallpox, but expresses no opinion in the way of diagnosis. Neuburger, *op. cit.*, p. 247, states the epidemic lasted about fifteen years and its manifestations chiefly resembled smallpox or dysentery. Niebuhr, *op. cit.*, p. 251, without good grounds says, more or less offhand, that it was oriental plague; Arthur Shadwell, in the "Encyclopedia Britannica," and many others, insist it was not bubonic plague. Personally from Galen's description, I am inclined to agree with Osler that it was smallpox.

