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OBSERVATIONS

ON THE

SURGERY OF THE ANCIENTS,

VINDICATING THEIR CLAIMS TO MANY OF THE REPUTED DISCOVERIES AND IMPROVEMENTS OF MODERN TIMES.

DELIVERED AS

AN INTRODUCTORY DISCOURSE

TO A COURSE OF

LECTURES ON SURGERY AND MIDWIFERY.

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OBSERVATIONS, &c.

To those in pursuit of knowledge, it is no less interesting to observe the rise and fall of the empire of learning than of states.

In like manner, introductory to a course of lessons upon any art or science, we are naturally led to inquire into the first beginning or source whence it arose, and to trace its progress as it advances to perfection.

Introductory to the other parts of the course, I therefore propose, at this time, to call your attention to the most important facts which the history of surgery presents; more especially, as it was practised among the Greeks and Romans: we shall thence learn that the writings of the ancients have not only given origin to most modern improvements, but that very many of them that have been claimed as original inventions, if they have not been copied, are, at least, anticipated in these fruitful sources of instruction.

In the early ages of society, external accidents constituted the greatest evils to which man was exposed. Intemperance, luxury, and the refinements of civilized life, had not then impaired his bodily constitution, nor debauched his mind. He passed his days in the exercise which was necessary to procure the means of his subsistence, and devoted his nights to rest, undisturbed by care, or those anxieties

which at present occupy the civilized portion of the human race.

Man, in a state of nature, was therfore subject to, comparatively, but few diseases; though he was probably not less exposed to the common casualties of life than at the present day. In climbing the tree to procure its fruits; in traversing the forest, he was necessarily exposed to ordinary accidents; his attention, therefore, would be first directed to the discovery of such remedies as were calculated to remove the evils thus induced. To restore to its socket the dislocated bone, or to replace it when broken; to heal the wounds inflicted by the beast of the field, or the venomous serpent, must necessarily have been among the first objects of his attention. Accordingly, it is observed by Celsus and other ancient writers, that surgery was cultivated before any other branch of medicine.

The first writers upon physic trace the origin of their art, in common with all other branches of knowledge, to the Egyptians. But the history of surgery, as practised by that people, is so involved in fable, so blended with the pagan mythology, that notwithstanding the labours of Prosper Alpinus, it is impossible to ascertain their knowledge of medicine, or of any other branch of science. The operations of surgery, stated by the professor of Padua, as having been performed by the Egyptians, namely, the extraction of the stone from the bladder; bleeding in the veins and arteries; the application of the actual cautery, and the paracentesis of the abdomen, in dropsy, must probably have been the operations of the modern and not of the ancient Egyptians.

Let us, therefore, pass over the stories of Hermes and the Egyptian Æsculapius; the fabulous accounts of Osiris, Serapis, Isis, Horus, and Thonis, who were reputed the first practitioners in medicine, and ranked among their divinities,

to the more authentic history of the surgery of the Greeks, as related by Homer and Hippocrates.

The first Greek surgeons, on record, are Æsculapius and his sons Machaon and Podalirius. Æsculapius flourished about fifty years before the Trojan war; in that war his two sons distinguished themselves, not only by their valour, but by their skill in curing wounds.

In the Iliad, Machaon is spoken of as one of the most distinguished surgeons at the siege of Troy. He is called the *preserver of the Greeks;* and when wounded by Paris, he is lamented, as deprived of the benefit of that skill which he had so often exercised for the benefit of others.

> " The great Machaon, wounded in his tent,
> " Now wants that succour which so oft he lent."*

On another occasion, Homer shows the high estimation in which the profession was held :—

> " A wise physician, skilled our wounds to heal,
> " Is more than armies to the public weal."†

Of Podalirius too, it is said, that on his return from the destruction of Troy, he was driven upon the coast of Caria, and that he cured the daughter of Damæthus of a severe and dangerous illness, by bleeding her in both arms. This is the first authentic record of the operation of blood-letting. It is also stated, as an evidence of the value attached to the

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* ——————— Μαχάων,
Τὸν μὲν ἐνὶ κλισίῃσιν ἴομαι ἕλκος ἔχοντα,
Χρηίζοντα καὶ αὐτὸν ἀμύμονος ἰητῆρος,
Κεῖσθαι·

† Ἰατρὸς γὰρ ἀνὴρ πολλῶν ἀνταξιος ἄλλων,
Ἰούς τ' ἐκτάμνειν, ἐπί τ' ἤπια φάρμακα πάσσειν.

profession, at that early day, that the prince, as a reward to Podalirius, for his skill and services, gave him his daughter in marriage, with half of his kingdom as her portion.

Notwithstanding these testimonies of the skill of Machaon and Podalirius, it appears that their practice was very much confined to the removal of the darts or arrows with which their wounds were inflicted, and afterwards to the application of fomentations and styptics to the wounded parts ; for, when the heroes, recorded by Homer, were in other respects severely injured, as in the case of Æneas, whose thigh bone was broken by a stone thrown by Diomedes, he makes no mention of any other than supernatural means employed for their relief.

In the writings of Hippocrates, we have a full and circumstantial detail of the state of medicine and surgery among the Greeks in his time. He lived about 400 years before the birth of Christ ; and was the first who treated of medicine in a regular or systematic manner. Prior to his time, even among the Greeks, the practice of medicine was confined to their priests and philosophers. According to Celsus, the healing art became united with the duties of religion, from the consideration, that diseases were inflicted upon mankind as punishments for their crimes ; and were only to be averted or removed by the intercession of their priests, and the remedies they prescribed. The connection which exists between the study of medicine and the works of nature, also led their philosophers to unite the healing art with their favourite pursuits ; and it is related of Pythagoras, that he travelled from place to place, not so much to teach the peculiar doctrines of his philosophy as to practise physic. Thales, Empedocles, Heraclitus, and Democritus, were among the most distinguished of the Grecian philosophers. They were also celebrated as eminent practitioners of medicine and surgery.

Such was the unsettled state of medicine, until the time of Hippocrates. In his hands it assumed the form of a distinct science, and was practised as a separate profession. By his labours it became enriched with his valuable and numerous observations on the symptoms, causes, and cure of diseases ; and since his time, has been respected and cultivated, as among the most important of human pursuits.

Hippocrates not only rescued the profession from the hands of ignorance and superstition, but in his works he has left a legacy of great value to the surgeon, as well as to the physician ; and although they are the writings of the most ancient author, whose pages are preserved, and written at a period, when the structure of the human body, and the functions of the animal economy, were but imperfectly understood ; they are the writings of a master, and like the tablets whence he collected many of his observations, they deserve, even at this day, a place in the temple of science, where all can read and profit from the valuable truths they contain.

Among the surgical works of Hippocrates, are a treatise on *Wounds*, a book on *Ulcers*, another on *Fistulas*, a fourth on *Fractures*, and a fifth on *Dislocations*. His observations on abscess, ulcers, and wounds, show him to have been an accurate clinical observer. His work on the joints and dislocations, contain many practical remarks of great value on those subjects. His aphorisms contain principles which are received as so many axioms in physic and surgery ; and, at this day, constitute the subjects of academic exercises in the most distinguished universities.

He performed the operation of bloodletting in different parts of the body ; and although he did not understand the circulation of the blood, his observations on the effects of this evacuation, and the diseases in which it is most useful, are judicious and correct. In apoplexy, palsy, inflammatory diseases, iliac passion, quinsy, pleurisy, and inflamma-

tion of the abdominal viscera, &c. he made free use of this remedy. In quinsy, and in injuries occasioned by falls, he attached so much importance to bloodletting, that he, in some instances, bled his patient in *both arms*, and frequently *ad deliquum*.

In the treatment of fevers, he was no less cautious in the use of the lancet, than he was bold to employ it in those diseases in which it was decidedly indicated. At the same time that his ignorance of the circulation of the blood occasionally led him into error, the indications of bloodletting, and the circumstances in which it was most advantageously performed, did not escape his notice. The season of the year, the age of the patient, and habit of body, were no less regarded by Hippocrates than they are by physicians and surgeons of the present day. But he was not confined to the use of general bloodletting; he also made use of cupping and scarification for the removal of local diseases.

Hippocrates also performed many other operations, which at this time, notwithstanding the present improved state of anatomy, call for considerable skill and judgment in the operator.

He opened deep seated abscesses; he performed the operation of tapping in dropsy, and of trepanning in fractures of the skull and injuries of the brain. His aphorism upon the comparative pain and fever, before and after the formation of matter, and which he made the guide of his practice, abundantly shows his accurate knowledge of this subject. His observations on wounds of the head, teach us the great caution with which he formed his prognosis of the event. However small or inconsiderable the injury may appear, he observes, they require attention in their treatment, and care in the practitioner, not to hazard a hasty prognosis of the issue. This observation would do credit to the most enlightened surgeon of modern times; and cannot fail to im-

press us with an exalted opinion of the talents and experience of Hippocrates.

The *actual cautery* was also one of his favourite remedies, in the treatment of chronic diseases. In a case of ascites, he cauterized the belly eight times, during the forming state of this complaint. The physicians and surgeons of this day have yet to learn many valuable lessons from Hippocrates, and other ancient physicians, relative to the use of this remedy. The successful practice of Pouteau, of Lyons, (see his surgical essays) who has revived the use of this external application ; and the advantages which have resulted from the use of caustics, as prescribed by Mr. Pott, in diseases of the spine, tend to establish the importance of the principle upon which the actual cautery was prescribed, and has been found useful.

Many other local applications were made use of in the practice of Hippocrates, that are still employed by the physicians and surgeons of this day.

In an inflammation of the throat, he caused his patients to inhale the steam arising from the infusion of stimulant and aromatic herbs : upon other occasions, he directed fomentations to be applied to the parts affected. The warm bath, fomentations, gargles, ointments, cataplasms, and collyria, were also among the local remedies prescribed by this celebrated physician.

The important operation of lithotomy appears, also, to have been performed in the time of Hippocrates ; for, in the oath administered to his pupils, he exacts from them the obligation, that they *would not cut for the stone.*

Although the operation, as performed by the surgeons of that day, was apparently simple, compared with the present lateral operation ; still, from their imperfect knowledge of the structure of the human frame, it must necessarily have been attended with considerable danger. Even, as improv-

ed at this time, it is an operation frequently productive of dangerous consequences ; and, in some instances, proves fatal in the hands of the most skilful surgeon. The conduct of Hippocrates, therefore, in prohibiting his pupils from performing so important an operation, at the time the anatomy of the body was imperfectly understood, must give us a high opinion of the correctness of his judgment and his prudence ; at the same time, that it attaches an additional value to his works.

Such was the state of surgery, in the days of Hippocrates : after a life spent in the duties of his profession, to which he devoted himself, with unwearied industry, he died, in the 101st year of his age ; but in his works, he still lives.

In the interval of time, between Hippocrates and Celsus, many surgeons are recorded, by Galen and other historians : but as they appear to have made but few and inconsiderable improvements in the art, we will pass over this period, to the Augustan age ; which may also be denominated the Augustan age of medicine, as well as of science. Such it was rendered by Celsus, the Roman Hippocrates.

Celsus was not only distinguished for his professional acquirements, but ranks among the most celebrated writers of antiquity. Whoever, therefore, wishes to become acquainted with the state of medicine and surgery, prior to the fall of the Roman empire, or to read the Latin language, which, in that day, attained its greatest purity and elegance, will peruse his valuable pages ; which have gone through almost innumerable editions, and have been translated into almost every language employed as the vehicle of learning. Celsus not only exhibits an historical view of the state of medicine, as practised before his time, but has added much original observation, and many improvements to those of his predecessors. Although he has copied much from the writings of Hippocrates, he was not so blindly attached to his works, as

not to discriminate between his merits and his defects. On the contrary, while he gave the opinions and practice of others, he thought for himself. His works are accordingly esteemed the most valuable repository of the medical learning of his time. He treats of the healing art, in all its branches of *diet*, *medicine*, and *surgery*. His seventh and eighth books are exclusively devoted to the latter subject, and contain a systematic view of most of the diseases and operations which fall to the province of the surgeon.

In his observations on *wounds*, *abscesses*, and *ulcers*, he describes the various appearances they assume, and adapts his remedies to the different stages, with as much correctness as is done by the surgeons of this day. To wounds, accompanied with hemorrhage, he applied constant pressure, by means of a sponge, wet with vinegar. If necessary, he applied the ligature to the bleeding vessel, or closed its orifice, by the actual cautery. When attended with inflammation, he enjoined abstinence upon the patient, and covered the part affected with cold applications. In *contusions*, he freely opened the bruised part, or dilated the wound for the evacuation of the blood effused, when there was no danger of injuring the larger blood-vessels, or important nerves. In gangrene, occurring in the extremities, he cut down to the sound parts ; and if he failed, by that and other efforts, to conquer the disease, he recommended the amputation of the limb. To promote the suppuration of abscesses, he employed poultices, composed of barley, meal, marsh mallows, or linseed and fenugreek ; but when opened, he prescribes stimulant food and drinks, and to the parts he applied honey and other digestives. When the lips of the wound became callous, its surface spongy and insensible, and the discharge of an unhealthy appearance, he washed the wound and the surrounding parts with *wine*. From this practice of Celsus, the surgeons of the present day may learn an important

lesson in the treatment of wounds. He also describes the symptoms of that dangerous abscess, the *carbuncle*, and advises the actual cautery to corrode the gangrened part. This practice is now superceded by the internal and external use of the peruvian bark, and other stimulants. In erysipelas, he applied cerussa, with the juice of *solanum*, a powerful sedative. In the treatment of the callous ulcer, he removed the hard edges with the knife, or corrosive applications. In cancers, and in the cancerous ulcer, he prescribed the auripigmentum or arsenic. In fistulous ulcers, if tortuous in their course, with the probe as his guide, he ascertained their direction ; divided them freely with the knife ; and, upon exposing their internal surface to view, he removed the callous portions, and applied such dressings as were calculated to promote the growth of new parts. In other instances, he effected a cure, by the use of stimulant and corrosive injections. In caries of the bones, he directs them to be perforated as deep as the disease extends, and afterwards a hot iron to be passed into the foramina, made by the perforator, for the purpose of drying and separating the diseased portions : but if the caries and blackness extend through the body of the bone, he advises a total separation of the part affected.

In his chapter on tumours, he described them according to the nature of their contents, and advises their extirpation. The *steatomatous* tumour, from the firmness of its consistence, he directs to be carefully separated from the skin and surrounding parts, and to be removed entire, without dividing the sac inclosing it. He then directs the lips of the wound to be brought together, and an application made to agglutinate the divided parts ; at the same time, making use of wine and other external stimulants, to promote their union. In this treatment, we see the improvements of the present time, of *saving skin*, and *healing by first intention*. That this was the

object of Celsus, appears evident, from a subsequent direction which he gives, in case any portion of the sac should be left behind, as in the removal of the melicerous or atheromatous tumour; in which case, he orders the wound to be left open, and digestives to be applied, for the purpose of throwing off the remaining portion of the sac. In the atheroma of the eye-lids, in which the sac adheres very slightly to the surrounding parts, he directs the teguments to be divided, without wounding the sac, and the tumour to be removed by the fingers, without further dissection ; for, he adds, it easily separates. The same mode of treatment you will find recommended in the work of Mr. Hey, as a valuable improvement of the present time. In his chapter, on diseases of the eyes, Celsus treats of the *cataract*, and directs it to be depressed by the needle ; and if it rises again, to be broken into pieces ; the practice recently adopted by the most eminent surgeons. In *ophthalmia*, he prescribes venesection, purgatives, abstinence, low diet, rest, and a dark room. He washes the eye with collyria, composed of an infusion of roses and the poppy. When attended with defluxion, he employs astringents, cupping, and the actual cautery, to the temple and forehead, analogous in its affects to blisters and issues, as at present prescribed, under similar circumstances.

Celsus also performed the operation of the hare-lip. He extirpated the polypus from the nose ; he removed, by excision, the enlarged and indurated tonsils ; he diminished the elongated uvula ; and he removed the bronchocele, by caustics and the knife. But the skill of Celsus was not confined to the smaller operations of surgery.

In diseases of the bones of the head, and in injuries of the brain, his practice was such as the most eminent surgeons of the present day must approve. The symptoms which are occasioned by a fracture of the skull, are minutely detailed. He is the first who notices the rupture of the vessels of the

brain, and the other effects produced by a concussion without fracture of the cranium. He also observes, that the evidence of such injury, is generally a pain immediately above the part affected; and, upon exposing the bone to view, he adds, it is found of a *pale colour*. This characteristic symptom of effusion of blood, or of the formation of matter between the cranium and the membranes of the brain, you will find contained in the works of Mr. Pott; but without the credit due to that accurate observer. In cases of this sort, and in fractures of the skull, it was the practice of Celsus to make a free crucial incision of the integuments; by which, alone, in many instances, the patient was relieved. At the same time, he condemns the precipitate conduct of his predecessors, in proceeding to the use of the trepan, without waiting to observe the effects of other remedies.

The practice of Celsus is, at present, pursued under similar circumstances, by that celebrated surgeon, Mr. Abernethy, of Bartholomew's hospital; who has, in numerous cases, dispensed with the trephine, having relieved his patient by the application of other remedies. But if the symptoms became more formidable, and the patient experienced no benefit from the first operation, Celsus then directed such portions of the bone to be removed, as the extent of the injury appeared to require. In those cases, where the fracture or depression was small, he employed the instrument called the *modiolus*; which, in its construction, is similar to the trephine. But when the fracture was extensive, or of an irregular shape, he made use of a perforator, so as to surround the part affected with holes; and afterwards employed the chisel and mallet to cut out the portion of bone inclosed within them. In this operation, large portions were removed, which the modiolus could not cover, unless frequently applied. Mr. Hey, of Leeds, has lately introduced a substitute for the trephine; by which the same

advantages are obtained, as by the perforator and chisel of Celsus.

As anatomy, in those days, was very imperfectly understood, we cannot be surprised that Celsus was less successful in some of the more complicated operations of surgery. Accordingly, in reducing strangulated hernia, he experienced great embarrassment: but it is to be recollected, that this operation requires an accurate knowledge of the structure of the parts concerned, to guide the knife of the operator. This knowledge has only been acquired within a few years. In the hands of John and Charles Bell, Mr. Astley Cooper, of London, and Mr. Hey, of Leeds, this operation has received its best and most important improvements. But in the history given by Celsus, of the symptoms and causes of hernia, and of the nature of its contents, he is no less perspicuous than upon most other subjects that came under his notice. He describes, with great accuracy, most of the species of hernia, now found in books of surgery, except such as occur under Poupart's ligament, and that which takes place between the abdominal muscles. The umbilical hernia he distinguishes into the omental and intestinal, according as the omentum or intestine is contained in the hernial sac. In like manner, he describes the scrotal hernia, as containing omentum, intestine, or both combined, with the symptoms which characterize each species.

He also distinguishes scrotal rupture, as it occurs in the young child, and in the adult. In the former, he directs a compress to be applied to the part, and retained by means of a roller; by which application, he observes, the intestine is oftentimes forced in, and the coats agglutinated: but in the adult, when the intestine is protruded in a large quantity, and attended with symptoms of danger, it appears that he was unacquainted with the mode of replacing it within the

abdomen. He observes, it can only be reduced as far as the groin ; thereby producing a change, but not a termination of the disease : and in those cases, where he considered an operation necessary, he did not restore the displaced intestine, but by means of a ligature or the knife, he diminished the quantity of loose skin, and by the inflammation and thickening of the parts induced, formed a cicatrix, which was calculated to prevent an increase of the prolapsus. Upon the same principle, in umbilical hernia, when the parts protruded were restored to their natural situation, he excited inflammation by ligature and caustics ; which so changed the structure of the parts, as to prevent a return of the rupture. Thus far his operation was successful ; but in some instances, from want of anatomical knowledge, he considered it necessary to remove parts which have no connection with the disease. In hernia of the intestine, he sometimes removed not only a portion of the hernial sac, but also extirpated the testicle itself.

In hernia of the omentum, if small, he replaced it by the hand alone ; and to prevent it from being again protruded, he applied a compress to the part, and secured it by a bandage passed round the loins: but if large, he did not attempt to reduce it. He then, to effect a separation of the mortified parts, made use of escharotics or ligatures, preferring them to the scissors or knife, on account of the hemorrhage which attends the use of cutting instruments. The same observation is made, and a similar practice adopted by Mr. Hey, of Leeds.

Celsus also performed many other operations in diseases of the abdomen and pelvis, including the organs of generation. In wounds of the intestines, he performed the operation of gastroraphy ; and his description of the mode of performing it, corresponds with the directions given by the best

writers of the present time. In the treatment of dropsy, he performed the operation of tapping, not only on the side of the belly, but, in some instances, he perforated the navel; which is considered, at this day, as the latest improvement in the manner of performing paracentesis. The hydrocele, circocele, and the inflammation of the testicle, are also well characterised by this accurate observer. He cured hydrocele by incision. The varix of the spermatic cord, as well as the varices of the veins of the legs, he cured by laying bare the vein thus enlarged, and by applying the actual cautery; or removed it by excision, having previously separated the vein, and inclosed it with ligatures, above and below the part to be removed. He divided the prepuce in phymosis; he introduced the catheter in retention of urine, both in males and females. Celsus also performed the important operation of lithotomy; but considered it as attended with great danger. He very judiciously prepared his patient for this, as for every other capital operation, by abstinence from solid food and stimulating drinks. His mode of operating, was, in some respects, peculiar to himself; and was hence denominated *lithotomia Celsiana*; but, in most circumstances, it agreed with that afterwards adopted by Paulus Ægineta, and others, by the apparatus minor, or cutting on the gripe. When the operation was finished, he bled his patient, enjoined abstinence, made use of a warm bath, and oily fomentations, to diminish inflammation: but he advised the operation to be performed only in the spring of the year, and confined it to patients between nine and fourteen years of age.

These facts teach us, that Celsus was not sufficiently acquainted with anatomy to perform this operation, without great hazard to the patient. At this we cannot be surprised, when we recollect that it is only within a few years that it has been performed with general success. Our only sur-

prise should be, that the art of surgery was so well understood as it appears to have been in his day. Among other operations, he extracted the dead fœtus from the womb, by means of the crotchet ; and when difficulty presented, he divided the child, and removed it piece-meal. To restrain hemorrhage, or to remove any inflammation, induced by the operation, he applied soft cloths, wet with an infusion of vinegar and roses. Condylomata (or tubercles of the anus) and hemorrhoidal tumours, he removed with the knife and ligatures. The same treatment you will find adopted and recommended by Mr. Ware, in his valuable essay on that subject ; but which contains no reference to the practice of Celsus. Fistula in ano, he also cured by ligature, making use of a linen thread instead of the leaden wire, employed by the moderns. This mode of treating fistula, was revived by Foubert, and has been frequently practised in France since that time. Professor Camper has also made use of ligatures, in those whom he found fearful of the knife ; or when the patient could not submit to the necessary confinement which the incision requires. But the great inconvenience which arises from the long continued irritation of the ligature, and the prolapsus ani, which it sometimes produces, have occasioned it to be laid aside.

Celsus was no less successful in the treatment of fractures and dislocations. His directions for reducing the fracture of the clavicle, and his treatment of fracture of the ribs, correspond with those contained in the present systems of surgery ; and in fractures of the extremeties, although he did not employ the many tailed bandage, or place the broken limb in a flexed position, but confined it to the fracture box, he remarks, that the smaller bones were generally united between fourteen and twenty-one days ; those of the leg and fore-arm, between twenty and thirty ; and those of the arm and thigh-bone, between twenty-seven and forty days. Few

surgeons of the present time, I believe, can boast of greater success.

An eminent modern physician, emphatically exhorts every person, in the study of medicine, to keep Celsus in his hands, by night and by day. I trust the outlines I have exhibited of his practice of surgery, and the evidences I have adduced of his skill in that art, will also induce the pupil in *surgery* to give his writings an attentive perusal.

Galen, the physician of the Emperor Marcus Aurelius, also holds a distinguished place in the history of surgery. He was born at Pergamus, a city of Asia, about 130 years after Christ, and during the reign of the Emperor Adrian. He was celebrated, not only as a practitioner in physic and surgery, but as the most accurate anatomist that had then appeared. His knowledge of anatomy, at the same time that it furnished him with more correct views of the functions of the human body, and of the general principles of surgery, also enabled him to perform some operations, unknown to his predecessors. By some who profess to give an account of his works, he is considered as the mere commentator on the writings of Hippocrates ; especially upon those subjects which relate to surgery. But although Galen selected every thing he considered valuable in the works of those who had gone before him, he has left the evidence of great original genius, not only as a physician, but as a practitioner of surgery. I may remark, that his writings, like those of Celsus, have been plundered by the moderns, without the least acknowledgment of the source whence they derived the materials of what they afterwards denominated discoveries and improvements.

Without going into a detail of the practice of Galen, I shall confine my remarks to a few of those subjects in which he appears to have added to the stock of knowledge he had received from his predecessors.

In his chapter on ulcers, he distinguishes their several species with so much correctness, that it has evidently been the basis of Mr. Benjamin Bell's treatise upon this subject. Not only the names by which they were designated, by Galen, are retained ; but even his definition of an ulcer has been adopted by our late systematic. " A solution of continuity, in any of the softer parts of the body," is the definition given of an ulcer by Mr. Bell. " Unitatis solutio est in carnosa parte," is the language of Galen. I may also add, that in the treatment of ulcers, there is scarcely what is called an improvement in the practice of the moderns that was not known to Galen. During the inflammatory stage of phlegmon, he carefully enjoined upon his patient to abstain from wine and stimulants generally. He also made use of the lancet, purgatives, and warm bathing, to diminish the inflammation ; but when the ulcer was formed, and a free discharge of matter obtained, he directs his remedies according to the character of the wound. In the simple purulent ulcer, his practice was to bring the edges as nearly as possible into contact. In the sordid ulcer, he made use of honey, verdigris, and terebinthinate applications, to change its condition, and to promote the growth of healthy parts. Oily dressings and relaxing cataplasms, he very properly proscribed as injurious in those cases. With the same view of restoring a healthy action in the part, he directs it to be washed with wine ; and, as an evidence that he had in view its stimulant qualities, he observes, that the Falernian, which was a sweet wine, was useless in this respect. " Nam quecunque dulcia pariter et fulva sunt, ut Falernum, ad id inutilia existunt."

But one of the most approved modes of treating ulcers, in the present day, is by bandage. This, also, was the practice of Galen ; and in his direction upon the application of the roller, he observes, it should not be so loose as to give no sup-

port to the limb, nor bound so tight as to excite pain by its pressure. "Circumductio etiam ipsa non ita laxa sit ut nihil efficiat nec ita vehemens ut dolorem premendo excitet." In punctures of the nerves, the practice of Galen was also original. If the wound be large, he advises it to be kept open; but if small, he directs it to be dilated, and terebinthinate and other stimulating dressings to be applied, for the purpose of obtaining a free discharge from the surface of the wound. "Ubi aliquis nervus est punctus, cutem ipsam servari oportet, aut quod tutius est latius incidere." In warm climates, the same practice is successfully pursued under similar circumstances, in the present day.

For the purpose of suppressing hemorrhage, when the external application of cold water and astringents failed, such as unripe galls, balaustines, and the stronger austere wines, it was the practice of Galen to raise the bleeding vessel, by means of a hook, and to secure it by a vinculum or ligature. Ambrose Paré, in the sixteenth century, therefore unjustly claimed the use of the ligature as his discovery.

The aneurismal tumour is also well characterized in the writings of this celebrated surgeon. From some expressions contained in his work, I am also induced to believe, that in the treatment of fractures, he placed the broken limb in a flexed position. It was certainly his practice, when the bones were secured by bandage, to place the limb in that situation which occasioned the least pain to his patient; and in the application of the bandage, he was aware of the inconvenience and injury arising from too severe pressure upon the part affected. To aid the generation of bony matter, in forming a callus, he also, as in wounds of the soft parts, made use of wines and other stimulating applications.

Two other writers of respectability, among the ancients, merit our attention, Ætius and Paulus Ægineta. I pass

over the works of Oribasius, as they contain nothing important, but what is to be found in the writings of Galen.

Ætius flourished at the end of the fifth and beginning of the sixth century. He was born at Amida, in Mesopotamia, and was educated at the celebrated medical school of Alexandria. Although his works are not so well digested or arranged as those of Paulus, his chirurgical writings contain many valuable observations, not to be found in Celsus or Galen, and were even omitted by his successor, Paulus. His account of the diseases of the eyes, is much more minute and complete, than the chapter of Celsus upon the same subject. In the treatment of anasarca, he prescribes scarification of the extremities ; not merely for the purpose of a temporary evacuation of the water contained in the cellular membrane, as had been recommended by Hippocrates, but made his incisions so bold and extensive, that he thereby, according to his own observation, not only relieved his patient of anasarca, but frequently cured him of ascites. Sylvius de la Boe, afterwards proposed to perform this species of tapping, by means of a needle, and claimed the discovery as his own.

I have already remarked, that Hippocrates and Celsus made frequent use of caustics, especially in the treatment of dropsy, epilepsy, sciatica, and phthisis. Ætius also employed them, not only in the same complaints, but in many other diseases. In asthma, palsy, empyema, and affections of the head ; in obstinate head-aches, or in injuries of the brain, he applied them to the nape of the neck, and to different parts of the head. He directed them to be long continued, to be applied in great numbers, and made of a circular shape, that they might be slow to heal, and thereby afford a large discharge. In the bite of a mad dog, he directed them to be kept open forty or sixty days ; and if, in that time, they should, by accident, be closed, he renewed their

application. In this free use of caustics, he was followed by Paulus. The issues, as employed at this day, are found useful in the same diseases, for which the caustics were so successfully applied by the ancients. It is said by some, that the use of the *seton* was known to Ætius : this does not appear. Roland, of the tenth century, was the first who described this species of issue. It was afterwards spoken of by Rhazes and Albucasis, as much in use in their day. Dr. Freind remarks, that whoever reads the chapter of Rhazes on this subject, will find that the ancients understood the value of this remedy as well as the moderns.

Ætius also treated of the diseases of women. He notices the causes of difficult labour, and directs the mode of delivery, which should accordingly be pursued. In one respect, his work is imperfect ; as he takes no notice of an important branch of surgery, fractures and dislocations.

Paulus Ægineta, so called from his birth-place, the island Ægina, flourished about the middle of the seventh century. He also was a pupil of the Alexandrian school. After finishing his education, he travelled into different countries, and thereby had more extensive opportunities of becoming acquainted with diseases than most of those who had preceded him. His works, accordingly, contain much original matter. His chirurgical writings, in which he devoted a book exclusively to the operations of surgery, have been universally considered as more complete than any that appeared before the revival of learning in the fifteenth century. It is sufficient evidence of the value of the works of Paulus, that his writings, with those of Celsus, became the text books of Fabricius, a celebrated surgeon of the sixteenth century.

In his treatise on ruptures, the different species of hernia are more minutely detailed, and the operation more circumstantially described than by Celsus. That species of aneurism, arising from a wound or rupture of an artery, which

was known to Galen, he describes with great accuracy, as well as the circumstances by which it is distinguished from other tumours. This is not all. In the treatment of the disease, he performed the operation for its removal, in the same manner as is done at this day, by securing the vessel above and below the part affected, and dividing it between the ligatures. He also describes the fracture of the patella, which was not noticed before his time. In chronic affections of the head, and in diseases of the eyes, he opened the jugular veins; and, in some instances, the arteries behind the ears. To render the operation of cupping more effectual, he improved the scarificator in such manner as to make several incisions at the same time. In cases of quinsy, threatening suffocation, he performed the operation of bronchotomy. He directs it to be performed about the third or fourth ring of the trachea, being a part which he observes is less covered with flesh, and where there is the least danger of dividing many vessels. He is also careful not to make the aperture larger than is sufficient for the purpose of respiration. In this operation, Albucasis afterwards copied Paulus, without an acknowledgment.

Paulus also improved much upon his predecessors, in the manner of performing some of the more usual operations of surgery. In extracting the stone from the bladder, he did not, like Celsus, confine the operation to childhood, but performed it at any period of life. He also directs the incision to be made, not in the middle of the perineum, as was done by Celsus, but upon the left side of it, nearly where the incision for the lateral operation is at this day made. Upon this subject, he also gives another important direction; to make the external incision free and large, by which both the sufferings of the patient and the danger of the operation are diminished. Paulus also treats of the diseases of pregnancy, and was skilled in the practice of midwifery.

Such was the state of surgery among the ancients; and from the progress they had made, much also was to be expected from the labours of their successors: but a long interval of ignorance and darkness now ensues.

The civilized parts of Asia and Africa were overrun by the Saracens, under Mahomet and his successors. Being, from their religious tenets, the professed enemies to all knowledge not contained in the Koran, they ordered the celebrated library of Alexandria to be destroyed; and with it all the liberal arts had nearly perished.

About the same period, the Goths and Vandals overran the Roman empire. They also were the enemies of science, because they were strangers to it. But after the fury of the Saracens had somewhat subsided, the love of health and life, which is natural to man, induced them to revive the healing art; which had, in a great degree, shared the general fate of learning. The works of Hippocrates and Galen were sought for, and translated first into the Syrian, and thence into the Arabian language: in a few centuries, the Mahomedan governments abounded in schools of physic. Although the works of the most celebrated Greek and Roman writers were transcribed by the Arabian physicians, Rhazes and Avicenna, the science of medicine received little improvement from their hands. In like manner, the knowledge of surgery, among the Arabians, was preserved, but not improved. The precept of Mahomet, which forbad the opening of dead bodies, must necessarily have prevented improvements in anatomy, and consequently retarded their progress in the practice of surgery. Notwithstanding the labours of Rhazes, Avicenna, Albucasis, and other eminent practitioners and teachers of medicine among the eastern nations, surgery received few or no additions, from the time of Paulus until the sixteenth century; when Fabricius, of Aquapendens, published his celebrated system, contain-

ing, not only the surgery of the ancients, but many original observations, which may be perused with much interest, even at this day. Of Fabricius, Boerhaave observes, " ille superavit omnes ;" " omnibus potius quam hocce carere possumus."

Upon some future occasion, I propose to take a view of the progress of this art, from the revival of learning to the present period ; in which I shall enumerate the advantages which the practice of surgery has derived from the discovery of the circulation of the blood, and the subsequent improvements in anatomy and the other branches of the healing art.