THE FOUR APOSTLES OF SURGERY: AN HISTORICAL SKETCH.

Being the Address at the Annual Meeting of the Glasgow and West of Scotland Branch of the British Medical Association.

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GENTLEMEN,—My first duty, on taking this chair, is to acknowledge the honour you have done me in selecting me as your President. I need not say how much I appreciate this mark of your confidence, especially as this is but the second occasion on which you have exercised your right of choice. I regard your kindness the more highly, as I succeed a man so respected and honoured as Professor Allen Thomson. Having, first as a student and latterly as a colleague, come much into contact with Dr. Thomson, I can the more thoroughly value his commanding talents and high character, and I am sure you will heartily endorse the wish which I express that, in that retirement which, after his long career of distinguished usefulness, he is about to seek, he may enjoy for many years to come the affectionate regard of his large circle of friends. In electing him as our first President, we conferred on him the highest honour we had to bestow, and indicated to the British Association where they could find a worthy chairman. They have taken the hint, and, in choosing him, they have honoured our city and our Association.

Gentlemen, during the past year—the first of our individual existence as a Branch of the Medical Association—we have been almost wholly occupied in organising and consolidating our Society, and it is most gratifying to think that, mainly by the efforts of our energetic secretary, we, the youngest scion, are already the tenth most numerous Branch of the thirty-two which constitute the parent Association. I have every confidence that another year's operations will advance our position both in numbers and influence.

During the past winter, we had one meeting to discuss the provisions of the Habitual Drunkards Act; and, though I was unable to be present, I understand from others that that very important topic received the attention which its gravity deserved. It will be the duty of the Council to call you together if any question of vital interest to the profession occur during the coming year.

Gentlemen, it is my duty to address you on some subject of general interest; and, in the choice of a topic, I have been mainly guided by the desire to occupy some ground a little beyond the usual range of such undertakings, and to dwell on a subject which had especially occupied my own attention. I thought you might not be unwilling to pass for a short time beyond the horizon of every-day questions and renew your recollections of the larger field beyond; for I take it to be a good thing now and again to get out of the narrow valley in which all of us are daily labouring, and from a mountain-top to look back on the long and rugged path by which our profession has advanced. Every soldier in such a great battle as that in which we are individually bearing a humble part gains much by an occasional survey of the whole field, so that, by securing a comprehension of the general plan and the various positions occupied, he may the better be able to direct his personal efforts. I have determined, in the time at my disposal, to try to draw your attention, in a rapid sketch, to the chief influences or forces which have moulded our science, and to the history and place of those men who, by their genius and labours, have most powerfully aided its development. If I confine my remarks to that branch of medicine with which my own life has been chiefly occupied, it will be because I am most familiar with its history, and not from any belief that a broad distinction can or should be drawn between medicine and surgery properly so-called. Surgery is, I hold, medicine and something more. It is medicine with an additional arm.

That medicine, speaking generally, is a science of the greatest and most momentous consequence will be readily conceded by this assembly. That it is perhaps the oldest of all studies may be assumed; that, notwithstanding all the labour which has been bestowed upon its cultivation in times past, it has not yet reached perfection or acquired the position of one of the exact sciences, is simply due to its subject—matter and mind—both unstable, both ever varying, both complex and mys-

terious in their combination and reactions, both ever subject to endless influences from within and from without. It is, no doubt, from a want of due appreciation of this difficulty that even thoughtful men have cast discredit on medicine as a science, and that the great Lord Bacon used the phrase so often quoted that its labour had "been more in a circle than in progression"; for he adds: "I find much iteration but small addition."

It is necessary to survey a large part of the road which medicine has travelled, and not to confine our review to a limited period, in order to understand aright the real progress which has been made, and to see that, with all the halting and turning aside, and even occasional retrogression, which have marked epochs of the history of our science, still there has been in truth a grand advance along the whole line. I have always thought that a careful study of medical history should form a portion of our professional training, so that men would know what had been done in the past, and avoid that painful "iteration" of which Bacon speaks, and thus, too, be better prepared to prosecute original research. Such knowledge would greatly diminish our professional discoveries and our literature. "Nescire quid antea quam natus sis acciderit, id est semper esse puerum" is as true of medicine as of history.

Every great epoch in the history of medicine has been signalised by the advent of a man of genius who has been the personification or summing-up of the spirit and doctrines which had been gradually growing, and to which he has given expression and embodiment; and, in most cases, the characteristic of such eras has been chiefly due to the bias given and the influence exercised by such men. Hippocrates, Galen, Ambroise Paré, and John Hunter were each the summation of centuries of work. They systematised and consolidated it so as to supply a new starting-point to the science they adorned; they brought to full maturity the fruit which had for long periods before their respective epochs been slowly ripening. It is my desire to explain and illustrate this thesis.

Little or nothing is known regarding medicine before the birth of Hippocrates, *i.e.*, B.C. 450. It is true that we have reason to suppose that, in India and China, a large amount of medical knowledge existed; and we know that the ancient Egyptians attained to a certain eminence in the art; but it was in the free and enlightened land of Greece—a country which, with its freshness and vigour, was then the perfect Eden of human intelligence—that medicine really took root and flourished. There, as in all primitive nations, medicine was intimately associated with, and subservient to, the religious rites, and the priests became its chief expounders. Long after Greece had lost her independence, the most celebrated physicians of the age were sons of her soil. In the gymnasias, where every art which could conduce to mental or, above all, to that bodily vigour and perfection which the Greeks so much admired was studied and practised, medicine naturally was much prized, and some of the most distinguished practitioners of the time—Galen among the rest—were surgeons to these establishments. There were two classes of practitioners in these institutions: the higher, called Gymnastici, attended to the numerous injuries which occurred; while an inferior set, termed Aliptæ, took charge of the frictions and lubrications so much employed, and which in time came to supplant as remedies all other appliances, and constituted the "iatroplitic" medicines of later times. Diet and exercise formed a very important part of the remedies used by the ancient Greek physicians, and much space is given to the consideration, in their writings, of such therapeutics. In our own time, the fashionable hydropathic establishments are perhaps, on the whole, the nearest modern representatives of the gymnasias.

In the Greek schools of philosophy, again, where intellectual exercises sharpened the wits and expanded the mind, medicine was a favourite theme. In truth, medicine was then considered a branch of philosophy, and Aristotle expresses their close relationship when he says: "The philosopher should end in medicine and the physician commence with philosophy."

Finally, in the poetic and fervid mythology of Greece, which embraced almost every object and force in Nature, and in which the gods were no longer the cold passive abstractions of the East, but the active, warm, and living personifications of perfect humanity, medicine was represented. Æsculapius was to the Greeks the type of the healing power of Nature. Sprung from the great sun-god Apollo, who daily spread a mantle of light and beauty over their happy land, they gave to him for offspring Hygieia and Panacea, and reared grand temples (Asclepeions) in their honour. These temples continued to be the centres of the study and the practice of medicine down to the Christian era, and till the oracles were rendered mute by the spread of the new faith.

It was my good fortune, many years ago, to visit most of the more celebrated of the Asclepeions, and the impression I received from their

ruins will never be effaced. I well remember my first glimpse of Cos when, after sailing for several days amidst the splendours of the Ægean, past Patmos, with its sacred memories of the aged apostle of the Apocalypse, and Samos, where Pythagoras was born, and close by many headlands and bays covered with the remains of places "famed in story", we at last anchored before the ruins of the great temple so long the leading medical school of antiquity, and the place where the venerable father of our science was born. The famous fountain, still called by the name of Hippocrates, is nearly all that remains of that once celebrated place. The groves and pillared porticos have long disappeared, and tangled weeds cover the prostrate fane. A short distance off, on a sunny slope, lay the rival temple of Cnidos, from which emanated the earliest medical writings, *The Cnidean Sentences*, while the renowned Halicarnassus was but a short way removed. It was in such lovely situations that the Greeks placed their great hospitals. They stood on high windy promontories, looking forth on a grand expanse of summer sea, like Cnidos and Cyrene; or sheltered in deep bays and surrounded by groves of fragrant orange and citron, like Cos, Smyrna, and Corinth; or secluded in wooded mountain-girt valleys, like Epidaurus and Pergamus, and Tricca and Tithorea. Everything which beautiful scenery and health-giving pure air could accomplish in restoring the sick was provided. Within the sacred enclosure, no dying person could enter nor parturient woman remain. A theatre, stadium, baths, medicinal waters, works of that divine "art" which was born in Greece, and music, which in these institutions was specially cultivated, were all supplied, in order to divest the mind of its sorrows, and give it confidence and hope. Within the dim and silent temple the solemn figure of the god sat enthroned. He held a staff in one hand and with the other rested on a serpent, which was the type of prudence and renovation, and which still continues the cherished emblem of our art. A dog, to represent fidelity and honesty, lay at his feet, and a cock, to indicate vigilance, was close by. The serpent was of a peculiar species alone found, at Epidaurus, and it was kept alive in the temple. It was one of those that, in later times, the Romans, when in straits from epidemic disease, borrowed in order to secure the protection of the Greek God of Healing.

The sick who came to consult the god, having been purified and anointed, passed the night within the temple lying on the fleece of the ram they had sacrificed, and, in dreams or in solemn accents, they received instructions as to their ailments. The deceptions practised by the priests have been well satirised by Aristophanes and Aristides. The officials having alone the right of interpretation, and being far from ignorant, knew well how to give a fitting turn to the dream or other communication. A record was made on tablets of brass or stone of the cases treated and the remedies used, and thus in time a vast number of crude observations were accumulated. Surgical instruments and medicinal drugs being also shown in these temples, and operations performed, it is easy to understand how these establishments became in time medical schools.

Such was the position of affairs when, amidst the sacred mysteries of the temple at Cos, Hippocrates was born. His father being a priest, he was from childhood initiated into the learning and practice of the place. He in time ministered, as his forefathers had done, at the altar; but, applying his great genius and remarkable discernment to unravel the confused records of the temple, he generalised the information there hid, checking its teaching, no doubt, by his own personal observation and experience, and analysing and setting forth the principles which were involved till he produced those remarkable writings which are the foundations of our professional literature, and which, while they were the undisputed dogmas of medicine for many centuries, are still quoted with respectful regard. By him was laid in simple truth the foundations of that great temple of medical science of which we here to-day are humble students.

As in various other great epochs of the world's history, remarkable galaxies of men of genius have appeared contemporaneously or in close succession, so with Hippocrates came a great company of men eminent in many departments of human activity. In history, eloquence, poetry, philosophy, and art, work was done which the world still despairs to equal. Pericles the statesman, Socrates, Plato, Xenophon, Democritus, Herodotus, Thucydides, Sophocles, Æschylus, Aristophanes, Euripides, gave to philosophy, history, and poetry a foremost place; while Phidias and Praxiteles, Scopas and Polycletus, gave life to marble, so that it was said to breathe. In painting, too, Apelles, a fellow-townsmen with Hippocrates, together with Zeuxis and Parrhasius, gave on canvas that warmth and beauty to the human figure which the marble denied. The world has never witnessed such an extraordinary concentration of intellectual glory, within so limited a period and in so small a country. Not the least eminent of these divine workers and thinkers was "the old sage of Cos". Doubtless, there has been ascribed to

him much insight into disease which, perhaps, he never possessed; but still his labours were many, and the fruit abundant. If his successors called him "divine", and Galen revered his writings as the voice of the Deity, it is no wonder that for two thousand years he should have ruled in the schools, and that his authoritative voice should still reach us. To our wider knowledge, much that he believed seems full of error, and even in some parts ridiculous; but, read by the light of his time, it is marvellous what glimpses he had of truth. He pursued medicine in the true spirit of the Baconian philosophy, relying on observation and experience as his guides. His descriptions of disease have ever been quoted as the perfection of terseness and of truth, while his well-known aphorisms have passed into every language. Where do men not repeat the solemn, almost desponding, opening phrase: "Life is short and art is long, the occasion fleeting, experience fallacious, and judgment difficult"?

Hippocrates specially studied that natural history of disease to which men in modern times attentively turn for guidance, and his great aim was to derive from such study a rational prognosis. He had great trust in the recuperative powers of the body, which he connected with those universally diffused forces of "Nature", which he saw tended, if undisturbed, to restore and repair. His "vis medicatrix" was the "anima mundi" of Pythagoras, and his great "physician of diseases". Not under the dominion of superstition, like many of his contemporaries, he avoided (as Hunter did) all foolish hypotheses and adhered to facts. In his remarks on diet and climate, he is particularly happy; and he did not consider it derogatory to give advice to his disciples even as to how to wear or dispose their robes, so as gracefully as well as effectually to do their duty.

It would be wholly beyond my purpose to dwell at present on the doctrines and teaching of Hippocrates; but I may remark that his views on the primitive elements (fire, air, water, and earth), and on the humours (black and yellow bile, blood, and phlegm), which so pervade his writings, together with his opinions on critical days and on that prognosis derived therefrom, which the Greek physicians looked on as the "crowning department of medical science", gave a complexion to the doctrines of the medical schools of which traces still continue in our phraseology, if not in our belief. On fractures and dislocations, and on many operations and instruments, he wrote most ably; and anticipated, as regards "immovable" apparatus and the treatment of club-foot without cutting the tendons, some practical points which have been ascribed erroneously to recent times. I would quote from the sayings of Hippocrates one sentiment before passing on. "Do not seek", he says to his followers, "either pomp or riches; heal gratuitously with the sole desire to secure esteem and gratitude. When you can, aid the poor man and the stranger, and, if you love mankind, you will love your art. If you are consulted about an affection, do not use long words, neither employ a studied or inflated discourse; for nothing more truly indicates incapacity as to imitate the empty buzzing of the hornet. In those diseases which allow of a choice of remedies, the instructed man will employ the simplest and most convenient as being the least liable to lead to error." Such sentiments are worthy of repetition in all times. The oath he administered to his pupils, too, breathes the same high unselfish spirit: "With purity and holiness I will pass my life and practise my art." This he himself did, and hence his unsullied reputation, and the veneration in which men held his name.

After the death of Hippocrates, came the reign of the philosophers who, disdaining the patient method pursued by him, thought to learn the science and practice of medicine by disputations and foolish speculations on theoretical questions. The temple practice was no longer a mystery, but known to a large circle, and medicine might have made a true advance if it had only been cultivated in a proper spirit. The Greek of that day sought knowledge in the discussions of the marketplace; but a comprehension of physic was not thus to be acquired. The various "sects" by which medicine was so long distracted thus arose. Rationalists or Dogmatists contended with Empirics and Methodists; Pneumatics, Gymnastics, and Eclectics had each their special shibboleth; and broke to atoms the concrete science which the labours of Hippocrates had welded. It would not be difficult to show that in our own day, without perhaps so distinct a classification, there are representatives of all these schools; and we all know that many of the terms and phrases we every day use took their origin from the doctrines of these disputers. Medical science was not advanced by their debates. In their dealings with medicine there was much activity, but almost no progress. Certain it is that the intellect was sharpened and acumen increased, but of substantial fruit the ingathering was small. Amidst this strife of tongues appeared a polished "litterateur" and undoubted gentleman—"the Cicero of Medicine"—Celsus. He must have been a man of remarkable application, as well as talent, if all the

works on so many and such discordant subjects as have been ascribed to him emanated from his pen. The precise time and place of his birth and of his death are equally unknown, so that critics have doubted his personality altogether, and thought that "Celsus" was a mere *nom de plume* used by many authors. There is much, however, in his descriptions which belies this, as the style, together with the vividness and the expressions, would imply the work of one man, and he a practical and experienced physician. I doubt not some here have, like myself, seen in the Museum at Naples many examples of surgical instruments exhumed from the buried cities, which not only illustrate in every particular his descriptions of them, but anticipate completely the shape and construction of some of our most useful modern inventions. Celsus describes, among many other operations, the autoplasmic operation by sliding, commonly designated "the French"; and the opening up of the cavity of the nose, to apply remedies in *ozæna*, has come to the front within the last few weeks. "Infibulation", too, which he recommends to insure continence in both sexes, has, I understand, been re-invented and used for curing masturbation. Nothing can excel the description of "lithotomy on the gripe" given by Celsus (hence termed "Lithotomia Celsiana"). That method clearly prepared the way for Dupuytren's bilateral operation. Unquestionably, he used the ligature, though he speaks of applying it to "veins", which in his anatomy was not synonymous with the same word now. He tied both varicose veins and piles as in our own day; and he applied a ligature to vessels in recent wounds, tying them in two places and dividing the artery between. In his dissertations on hernia, ranula, suppression of urine, poisoned wounds, diseases of the eye and testes, he has foreshadowed not a few modern views. But my time will not allow any further remarks on a writer who was, at least, a most able encyclopædist, and gave an accurate account of the state of medical knowledge at the beginning of the Christian era. No work on medicine has been oftener re-edited or more esteemed than his *De Re Medicâ*.

For four centuries after Hippocrates, the sects ruled the medical world. Their teaching was summed up and closed by Galen, who lived in the second century. He it was who bound up the divisions, and restored our science—one and indivisible—to its proper dignity.

Let me here, however, for a moment pause to allude to a great school which, under the enlightened Ptolemys, did good work at Alexandria for nearly three centuries before Christ. Human anatomy was there born, and learned men came from the most distant parts to gaze on the human skeleton. Though the writings of Erasistratus and Herophilus have perished, their works remain in their discoveries and the example they showed. The division of nerves into motory and sensory was then made, and Cassius speaks of the decussation of those of the cranium, and explains thereby the seat of paralysis on the side opposite the lesion. Physiology, chemistry, botany, clinical medicine, and operative surgery were cultivated in the medical department of that great Museum which, supported by the State, was devoted to the liberal arts. There Euclid, Theocritus, Callimachus, Ammonius, and Dioscorides taught, and the catheter and lithotrite were invented. When the Romans, B.C. 30, added Egypt to their other conquests, and led all arts and sciences captive to the City of the Seven Hills, they found in the temples, porticos, library, gymnasia, and hippodrome of Alexandria much which excited their wonder and admiration.

Rome continued the mistress of the world till the end of the fifth century, and drew to herself the learning and the wealth of the nations; and if, in these later times and within this then insignificant island of the western sea, there has arisen a greater and further-reaching seat of empire than Rome could boast, there has certainly never elsewhere in the world's history been any centre to which the products, both mental and material, of the known earth were drawn as they then were to Rome. Galen flourished at the zenith of that remarkable period. Already the leaven of the Christian faith had begun to stir the whole polluted mass of the pagan world, and cause, as is usual from the seething of such antagonistic influences, a disturbing, if not calamitous, effect. The old order changed, yielding place to new; for God had fulfilled himself in a new way on the earth, and given an aim and object to human effort. Before Christ taught, the world was "like a vast body without a soul". True, the human conscience had never been without a witness; but men had sought vainly to discover the unknown God whom they were blindly prompted from within to serve. They sought Him in every natural object and phenomenon. Sun, moon, and stars, dawn and sunset, the blue sky overhead, and the oceans, rivers, and mountains, the trees and winds, the summer flowers and autumn fruits, the winter's frost and the whisper of spring in the woods, were clothed by them with sentient existence and received divine honours. Human heroes and abstract principles, and even vices

and diseases, were included in their long list of deities; but with all that "the world by wisdom knew not God". The philosophers had tried to discover the mystery of life in the universe, but were only perplexed by what seemed an inexplicable whirl of mind and matter coming from the unknown and passing on into darkness. Burdened with a feeling of hopeless impotence, they tried in vain to arrange the chaos; but they held no key to the enigma, no thread to guide them in the labyrinth. Christ alone could bridge over the gulf which divided humanity from God, and reconcile all contradictions, while he quenched with living water man's thirst for a knowledge of the infinite. Henceforth the religion of mere nature and sense was to give place to that of conscience and morality. In the earlier Christian ages, however, the effect of this great revolution on the whole field wherein its action was felt was in some sense disastrous; and medicine, following, as it necessarily did, the varying phases of intellectual activity, suffered proportionately. The miracles of the early church, putting aside as they did the ordinary laws of nature, gave rise to confusion rather than order in men's minds. Fantastic and incongruous developments of the new faith prevailed. The Gnostics, Cabalists, and Mystics of the early church exercised for centuries a pernicious influence. Amulets, charms, incantations, talismans, and many other superstitious and mischievous inventions, took the place of remedial agents. Many of the talismans were, as is well known, exquisite works of art; but not a few were most repulsive in their nature. The cure in any case was ascribed to them, and not to the drug or surgical appliance they accompanied. All the absurdities of astrology and magic were in full force, and decided the selection of remedies. Such choice, too, was sometimes founded on dreams, or in some supposed resemblance in shape or colour to the affected part or the leading sign of the disease. They were heating or cooling, drying or moistening, in their effects. More ridiculous still was the idea that by arithmetical or musical combinations could their efficacy be determined. The most complex prescriptions, too, were employed. The celebrated *theriacum*, so much sought after and valued, contained no fewer than sixty-six most heterogeneous and discordant ingredients. Such superstitious and unreasoning practice was not, be it remembered, confined to the ignorant laity, but controlled the proceedings of the most celebrated physicians. As late as the fifteenth century, cancer was treated in Italy by the excrement of young men fed on fresh-water crabs dried and powdered; and Carpe's celebrated human cerate for wounds, which he only divulged because he had been divinely commanded to do so, was composed of the scrapings of the head of a mummy digested in female milk.

On the other hand, Christianity gave us hospitals and other charitable institutions, from the new view which it inculcated of man's duty to his fellows. These hospitals replaced the *Asclepions*, and attracted the services of the most noble matrons of the time. They were for the most part attached to religious houses, and were served by an order of priesthood named "*Nosocomi*", while the "*Parabolani*" were lay brothers.

But to return from this long digression: Galen was born at Pergamus and studied at Smyrna and Alexandria, afterwards serving as gymniasarch in his native city, and finally settling as a teacher of anatomy and surgery in Rome. Very numerous treatises were ascribed to him, on medicine and other subjects. His *Ars Medica*, which was the textbook of the schools for fifteen hundred years, gave a complete epitome of the medical knowledge of his day and of his own large experience, while his *Methodus Medendi*, written in his old age, was a summary of his latest views. Galen brought medicine again back to the true path, and pointed out to his successors the right road to advance. While Rome was growing in power, but scanty place was found for our craft. Slaves and freedmen alone practised, and the designation "physician" was a reproach. In the time of the later emperors, however, medicine had acquired a high place in the social scale. The heads of the profession were assigned a place and emoluments which have never been approached in any age or country. They ranked with the highest dignitaries, and received an annual state maintenance which has been reckoned as equal to £10,000. Medical education, too, both practical and theoretical, was carefully supervised, and licences to practise were given by examination. The preliminary training was in some respects of a high order, and the professional part occupied five years. The whole social life of the students was carefully looked after, and they were kept in strict discipline. Midwifery was almost wholly in the hands of females, and medicine and surgery knew no divorce.

Galen was a theist, and, in the celebrated passage denouncing those who would place the supreme good in their own will, he expresses his faith in these noble words: "I hold true piety to consist not in sacrificing to him hecatombs of bulls or burning incense of cassia, or of hundreds of fragrant ointments in his honour, but rather in ascertaining

for myself and in teaching to others something of his wisdom, his goodness, and his power."

From the time of Galen to the thirteenth century, we encounter no names of authority. They were all mere commentators bowing down servilely to the authority of Hippocrates and Galen, the then only two pillars of the medical edifice. Cælius Aurelianus, Antyllus, Heliodorus, Pliny the Elder, Aretæus, Paulus Ægineta, Alexander of Tralles, Aëtius, and Oribasius (he who found the Delphian oracle mute) were writers of note but of little originality.

[To be continued.]

ATROPIA AS A REMEDY FOR OPIUM-POISONING.*

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THE manifest antagonism of morphia and atropia in some respects has naturally given rise to the hope that they would prove antidotal. In the only case in which I have tried morphia as a remedy for poisoning by atropia, the morphia seemed antidotal. The following case may help towards an answer to the question whether atropia is of use as a remedy for poisoning by laudanum.

On December 2nd, 1874, a man and his four children were admitted into Addenbrooke's Hospital with symptoms of poisoning by laudanum, which had been given by the father to the children and himself. Some of them had been made to vomit when first discovered. Four of the five recovered, and their cases are no more interesting than other ordinary cases of opium-poisoning. The one who died was three years and a half old. He was admitted to the hospital at 1.30 P.M. The time at which he swallowed the laudanum is uncertain; it was probably about 11 A.M., or between that and 11.30 A.M. On his admission, he had a drowsy look, almost that of stupor. His pupils were very small. He was made to swallow large quantities of warm water; his fauces were tickled and vomiting was excited. The vomit had a faint, but quite distinguishable, odour of laudanum. He was then made to swallow large quantities of strong coffee, and much of this also was vomited.

After this, endeavours were made to keep him awake by compelling him to walk about, and by shaking and occasionally slapping him. Notwithstanding, the drowsiness was manifestly increasing. Therefore, at 2 P.M., 1-100th of a grain of sulphate of atropia in solution was injected under the skin at the epigastrium; and, as no benefit or any effect was apparent after ten minutes, 1-200th of a grain was similarly injected; thus making 3-200ths of a grain injected. After this, the influence of the atropia on the iris was gradually and plainly manifested. The pupils, which had been contracted to a pin's point before the administration of the atropia, gradually became largely dilated, and the dilatation after a time became so extreme that scarcely any iris could be seen. Nevertheless, the stupor went on increasing, and reached its highest degree while the pupils were largest.

About 3 P.M., he could be roused only for a few seconds at a time by the incessant and energetic employment of the various ordinary means. While he was in this heavy stupor, his arms were several times extended in tonic spasms, and his eyes now and then squinted divergently. About 3.30 P.M., his pupils being at this time dilated to an extraordinary degree, the stupor had deepened into coma. The respiratory efforts nearly ceased. Artificial respiration was then employed on Silvester's method, and the circulation was assisted by gentle friction of the feet and legs. At 4 P.M., the appearance of the child was almost death-like; his cheeks and lips were livid, his extremities becoming cold.

The artificial respiration was, however, persevered in incessantly. The pupils gradually recovered from their extreme dilatation, and, at 6 P.M., had regained an ordinary size. A little rattling was audible in the trachea. Under the idea that this might possibly have been due to some coffee that had been put into his mouth and not swallowed, he was held up by his feet for a few moments with his head hanging downwards. The tracheal *râle* was not removed by this operation, but he seemed a little roused by it. Soon after this, a slight improvement was noticed, the face assuming a less death-like appearance. The artificial respiration, which had been kept up incessantly for two hours and a half, was now intermitted occasionally for half a minute at a time. The holding him up by the feet, which had seemed of benefit by rousing him, was repeated about every quarter of an hour. On each occasion that this was done, there appeared a marked temporary improvement, and, on its third repetition, he opened his eyes and

looked about for a few seconds, though the tracheal *râle* did not cease. By the artificial respiration and the occasional inversion of the body, the improvement was maintained, and in the evening he began to be able to take beef-tea and milk, and afterwards, with the beef-tea and milk, small quantities of brandy were given, and he took about a drachm of it every two hours. Still more marked improvement followed this treatment. From about 3 A.M. till between 5 and 6, it was found safe to discontinue the artificial respiration for ten to fifteen minutes at a time and allow him to sleep. But, between 5 and 6 A.M., it was found more difficult to rouse him, and artificial respiration had again to be kept up continuously, except at the moment when nourishment was given. At 8 A.M., and on several occasions between this hour and 11, he seemed to be sinking, but rallied again under friction of the body and the energetic practice of the artificial respiration.

By 11 A.M., a decided improvement seemed established. Artificial respiration was discontinued, and he was allowed to sleep for half an hour at a time, when he was aroused to take nourishment and rid himself of the mucus, which still tended to accumulate in his trachea. A few mucous *râles* were at this time heard at the bases of the lungs. When roused, he was now able to answer "Yes" or "No" to questions, and twice he said he was "tired". He was now allowed to sleep undisturbed for an hour at a time.

He continued breathing quietly until about 1 P.M., when he awoke with his face very livid, and seemed in peril of instant suffocation. But he coughed vigorously, freed his trachea of a quantity of mucus, and then again breathed quietly. After this alarm, he was not allowed to sleep longer than half an hour at a time. But there seemed to be an increasing tendency to the accumulation of mucus, and the dyspnoea at times was urgent.

At 3.20 P.M., after a short sleep, he had again a violent struggle to get his breath, and this time the struggles were in vain. His face became very dusky. Artificial respiration was again employed; but, in spite of all efforts, he died in a few minutes. On *post mortem* examination, the lungs were found congested, but nothing else worthy of note.

The points of interest in the case are—1. The extraordinary extension of life by the diligent employment of artificial respiration after the condition of the patient had become apparently hopeless. The period from the taking of the poison was probably twenty-eight hours; that from the commencement of the treatment certainly twenty-six; that from the commencement of artificial respiration twenty-four hours. 2. The rousing of the child when he was held with his head downwards; the power of this in rousing him was well marked after all the ordinary means had ceased to have any effect. 3. The failure of the atropia to relieve the stupor, though manifesting its full influence on the iris. This was so plain that, even from the single case, we should be justified in inferring that (in a child at least, if not in all cases) atropia is useless as a remedy against opium-poisoning after the stupor has reached the degree at which the patient is incapable of standing. It seems to me more than probable that the expectations of atropia being a remedy against opium-poisoning will be wholly disappointed. But, if I try it again, I shall try it before the stupor has become well marked.

DOUBLE THROMBOSIS OF THE MIDDLE CEREBRAL ARTERIES, WITH AORTIC DISEASE, IN A CASE OF SYPHILIS.

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G. S., AGED 32, a printer, was admitted into the Bristol General Hospital on October 15th, 1875, under the care of Dr. Martyn, when the following notes were made by Dr. Imlay, the physician's assistant.

He had been ailing for ten days, and in bed one week. Five days ago, *i.e.*, after feeling poorly enough to lie in bed for two days, he appeared pretty well at night; but, next morning, was found by his friends in his present condition. For four days, therefore, his state had been this. He was hemiplegic on the right side, and there was entire loss of the power of speaking, while he understood well, and replied by signs. No cause was assigned, and there was no history of rheumatism. [Recently, however, he had been very irritable and nervous, and complained of weak memory and dimness of sight.]* The general state at present was one of much prostration. He was pale and damp, lying helplessly on his back. The temperature was

* Abstract of communication made to Cambridge and Huntingdon Branch.

* Information from his employer, obtained afterwards.