to deal with a large subject, and I fear I have done so rather cursorily. I have tried, however, to reduce to some sort of order a department of practice which at present may fairly be described as chaotic. Whether I have been successful it is for you to judge, and for subsequent discussion to elicit, but if I have spoken at times more dogmatically than you may think my experience justifies I ask your pardon. Of this at least I am sure, that whether the views I have put before you be right or wrong, it is only by dealing with cases on such lines as I have indicated that we are ever likely to have either satisfaction or success in our treatment of functional dyspepsia.

THE

FitzPatrick Lectures for 1905.

DELIVERED IN THE ROYAL COLLEGE OF PHYSICIANS,
NOVEMBER 14TH AND 16TH.*

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LECTURE II.

DR. EDWARD BROWNE (1644-1708) AND THE
EDUCATION OF PHYSICIANS IN LONDON
IN THE SEVENTEENTH CENTURY.

MR. PRESIDENT AND GENTLEMEN,—In my former lecture I endeavoured to show what were the attainments and what the studies of a mediaeval physician in London. John Mirfeld knew something of the seven liberal arts of grammar, of rhetoric, of logic, of arithmetic, of music, of geometry, and of astronomy. He had been influenced by the society, the traditions, and the architecture of a great university; had been trained in medicine by a master who was a physician; had known the members of the staff of a hospital and seen cases in it; had read *materia medica*, medical botany, and pharmacology in Nicholaus and perhaps in Marcellus, surgery in Rogerus and Lanfranc, medicine in some books of Galen, in Rhazes, in Avicenna, in Platearius of Salerno, and in the more modern writers Bernard de Gordon, John of Gaddesden, and Gilbertus Anglicus. He had read Ysaac on diet and knew by heart the precepts on regimen of the school of Salerno. He was familiar with the names and with parts of books attributed to Hippocrates and to Aristotle. He knew something of Horace, of Virgil, and of Ovid, and had read the *De Consolatione Philosophiae* of Boethius and some of the other works of that last of the Latin classical writers. His chief source of general knowledge was St. Isidore, whose *Liber Etymologiarum* is a vast collection on everything known in the educated world of the sixth century. He was thoroughly versed in the Old and the New Testament. He had read much in the writings of St. Augustine and St. Jerome and something of St. Bernard, St. Anselm, and of St. Thomas Aquinas. He wrote easily the Latin of his time, the living language of the Church and the Law. He had read no Greek literature and probably did not know the Greek alphabet, yet he knew something of Aristotle and had heard of Alexander. In medicine he was capable of recognizing the general condition of fever and of distinguishing clearly a few species of disease in which fever occurs, the plague, for example, and tertian ague. He could distinguish to some extent the manifestations of diseases which we call pleurisy and bronchitis. He knew that dysenteric symptoms were not all due to the same cause. He had names for several distinct skin diseases. He had some knowledge of enlargement of the lymphatics. He was as well acquainted with epilepsy as most physicians up to the days of Trousseau. He had observed hemiplegia clinically. He could recognize gout. He knew something of dislocations and fractures. He understood the value of exercise and of rational diet for the preservation of health and the ill effects of intemperance. He was acquainted with some of the effects of opium, of turpentine, and of sulphur, and of some other drugs. He understood the necessity of attention to the details of nursing, and was aware of the importance of remembering the effect of the mind on the body. I need not point out the gaps in his knowledge of

clinical medicine or of therapeutics, nor the defects in his whole system due to the small accumulated knowledge of his age in anatomy and physiology. Morbid anatomy was altogether unknown to him. Such were the attainments of John Mirfeld in the last quarter of the fourteenth century. A manuscript on pharmacology,¹ which was in existence in his time and which is now in the British Museum, has at the beginning a fine illuminated initial in which Serapion in a doctor's gown is shown lecturing on *materia medica* with a plant in his hand. The picture is instructive, for it shows that they are wrong who suppose that scientific methods were unknown in the Middle Ages. At the time of this manuscript a lecturer illustrating his teaching by specimens was clearly a familiar sight to students of medicine. While examining the manuscript I observed a Latin inscription in a much later hand which stated that the book belonged to Nicholas de Cusa, who had bought it and many other books on medicine and on the arts in 1449.

Nicholas de Cusa, to whom in the generation following Mirfeld's this copy of Serapion had belonged, was a man of varied learning and of a scientific habit of mind. He was a theological writer, a mathematician, and an observer of natural phenomena. He made an original examination of the Koran and critically discussed its contents, and in medicine he introduced an improvement which in an altered form has continued in use to this day. This improvement was the counting of the pulse, which up to his time had been felt and discussed in many ways, but never counted. The first method of a new invention is often unnecessarily cumbrous, but this does not detract from the merit of the man who first discerns its principle. Nicholas of Cusa proposed to compare the rate of pulses by weighing the quantity of water run out of a water clock while the pulse beat 100 times. Thus, he said, you may easily prove the degree in which the pulse of a young man is more rapid than that of an old man.

The weight, therefore, of water that flows out in relation to the differences of pulses in the youth, in the aged man, in the healthy and the sick ought necessarily to lead to a truer knowledge of the disease, one weight being proper to one infirmity and a different weight to another.

The manufacture of watches with second-hands has since given us a simpler method of counting, but the merit of introducing this useful kind of observation into clinical medicine belongs to Nicholas of Cusa. He became a cardinal and is buried in the church from which he took his title, St. Peter ad Vincula. Devotion attracts many people to this church, and a love of art, since it contains a great work of Michael Angelo, many others, and science adds a third interest in the monument of this improver of clinical medicine. His tomb has no ornament but its inscription, yet it is not improper to consider that he has a more lasting memorial in his commemoration over the whole globe wherever medicine is practised by the simple clinical method of observation which he was the first to contemplate.

During the lifetime of Nicholas of Cusa Constantinople was taken by the Turks, and Greek scholars, bringing with them Greek manuscripts, came into Italy. Some knowledge of Greek is discoverable in Western Europe throughout the Middle Ages, and two Greek words at least were known by sound to every Christian. The Greek quotations in the *De Consolatione Philosophiae* of Boethius, for many centuries one of the most widely read of books, must have made every reader familiar with the Greek letters, and letters or passages of Greek are to be found written here and there in manuscripts, as in the Schaffhausen *Life of Columba*. Johannes Scotus Erigena, it is certain, knew Greek well enough to translate the *Pseudo Dionysius*, and both Roger Bacon and Robert Grosseteste had considerable attainments in it. But it was a rare accomplishment, and there were very few Greek books in the libraries. The study of this great literature by many men altered the aspect of the world of letters. The invention of printing gave force to the new learning, and both the aspect of libraries and the studies of students were altered.

Our founder, Thomas Linacre, was born about the time of the death of Nicholas of Cusa, A.D. 1464. A century after the *Breviarium Bartholomei* was written Linacre was pursuing the study of Greek under Demetrius Chalcondylas in Italy. Before 1500 he had taken his M.D. degree at Padua and had returned to England. In the Renaissance medicine was as closely associated with literature and general learning as it had been in the Middle Ages. The difference was in the kind of literature, and consequently in its effect. Linacre and his contemporaries had learned Greek, and the study of the books of ancient Greece, whether Hippocratic or philosophical,

* In accordance with the terms of the foundation, these lectures are to be published at length in a separate book. The present report is to be regarded as a statement of the chief subjects considered.

opened their minds to the true source of natural knowledge—Nature herself and not books. Our College was founded in 1518 and established in our profession a permanent association with the world of learning.

The mediæval physician attained nearly all his knowledge from books. He had read books of many kinds, but more on medicine than on other subjects. He tended to add little from observation. The physician of the Renaissance had read medicine too. Both revered the name of Galen and of Hippocrates, but the later physician had seen Galen and Hippocrates so near that he adopted the method by which they had attained knowledge, and did not only consider their conclusions. The trouble the later physician had to take to attain a knowledge of Greek, as on the one side it brought him to the true sources of natural knowledge, so on the other, bound him to the other branches of human thought. The knowledge required in this College was not to be attained but by living laborious days, yet many men attained it, and thus a physician in England was rightly thought a member of the learned world.

Leland and Caius, his contemporaries, have both borne testimony to the learning of our first elected Fellow, Dr. Bartlott. Since his attainments were admired by Caius it is certain that he knew Greek and was well read in Galen, and we have the direct testimony of Leland that, unlike most of the physicians of the Renaissance, he knew also the mediæval writers. It was appropriate that a man not negligent of the old medicine and well versed in the new should be the first doctor to be elected into our College, and that the first occasion on which our statute book, bound in silver, should have been carried before the President in state should have been in the funeral procession which bore Dr. Bartlott to his grave in the church which had once been the daily resort of John Mirfield, and in which probably his bones then rested. A fine medal struck in honour of Dr. John Freind has on its reverse figures of an ancient and a modern physician joining hands, with the words:

Medicina vetus et nova:
Unam facimus utramque.

The same design would have been appropriate to the commemoration of Richard Bartlott.

Linacre, our first President, and Dr. John Clement, President in 1544, were physicians of the Renaissance. Linacre was a priest and Clement a layman, but both were Greek scholars of extensive reading, and the practice of both was guided by what they had learned from many treatises of Galen and from parts of Hippocrates. Most of Linacre's translations were of books of Galen, but he also translated the *Σφαῖρα* of Proclus, a Byzantine Greek of the fifth century of our era who founded a system of philosophy drawn from Plato, Pythagoras, and Aristotle. Clement's translations were of theological writers. Linacre wrote on Latin grammar and taught it to the Princess Mary. Clement was Professor of Greek at Oxford, and in both classical learning was indissolubly bound up with their profession. Their Greek reading gave a precision to their medical thoughts and practice. Perhaps the constant desire to bear in mind Hippocrates and Galen in diagnosis, prognosis, and treatment may have to some degree caused their view of medicine to be narrow, yet the constant contact of their minds with the truly natural method of the Greeks must have led them sometimes to opinions wholly based upon their own observations. The contact of these physicians with the learned world was close. Erasmus, More, and Colet were their friends.

Edward Wotton, who was President in 1541, and John Caius, President in 1555, were no less Grecians than Linacre and Clement, but they were the first of our College who added zoology to their studies. Wotton was of Magdalen College, and took his first degree at Oxford in 1514. The College of Corpus Christi was founded two years later, and Wotton in 1521 was appointed lecturer in Greek there. Bishop Richard Foxe, the founder, wished to encourage the new learning in his college, and he gave Wotton the income of a Fellow with leave to travel in Italy "to improve his learning and chiefly to study Greek." Wotton graduated M.D. at Padua and after his return to Oxford, where he was incorporated M.D. on May 16th, 1526, lectured again on Greek at Corpus, but two years later came to London. In 1552 he published in Paris a folio, *De Differentiis Animalium*, the first printed book by an Englishman on zoology. He had read all the passages about natural history in the Greek and Latin classics because he was interested in the subject, and so gradually came to put together the book. Sir John Mason, his particular friend and

patron, who was English Ambassador in France in 1550 and 1551, took the manuscript with him to Paris and seems to have arranged for the printing and publication of the book there. It was brought out with paper and type of the finest kind, and dedicated to King Edward VI.

The pages of Wotton contain much from Pliny and something from Aristotle, with many learned notes, some Greek in every chapter and quotations in the text from Plautus and Virgil, Ovid, Martial, and Oppian. He had read Cicero and Columella, Theophrastus, Hermolaus, Ennius, Ælian, Ausonius, Suetonius, Heliodorus, Nicander, Dioscorides, Paules Aegineta, and Albertus Magnus, yet very little in the book of Nature. His chapter on thrushes is less abstruse than some others, and shows that his mind looked rather towards bookshelves than hedgerows:

Of the kinds of thrushes and blackbirds and of other birds which are more or less like them. In the country and among hedges and farms the thrushes and blackbirds have their haunts. There are three kinds of thrushes. One is called viscovorus (mistlethrush) because it must have mistletoe and resin to feed upon, and it is of the size of a pica. Another kind is of the size of a blackbird. A third, which some call *ιλιός* and *ιλλάν* and others *τυλάς*, in Latin *iliacus*, is of smaller size and less marked with spots. Thrushes make their nests from mud, as swallows do, alone in high trees. They make a covering of hair and wool and line the inside of the nest with the same. The thrush changes its colour: for in the summer the plumage about the neck is spotted, while in winter it is of a single hue; their note is the same all the year round. It migrates in winter in search of winter food, so that in Germany thrushes are most numerous in winter. Beech nuts are liked by thrushes. The flesh of thrushes is harder than that of partridges and that kind of birds. The juice, nevertheless, if rightly cooked, is highly nutritious. As Martial says:

"Inter aves turdus, si quis me iudice ceteris,
Inter quadrupedes gloria prima lepus."

The thrush roasted with berries of myrtle is good for dysentery.

John Caius translated parts of Hippocrates and of Galen, and in him the study of these Greek physicians led to his own publication of observations, and his two books, *De Ephemera Britannica*, one in Latin and one in the vernacular, are the first fruits of clinical observation in England. His contributions to natural history were both addressed to the naturalist, Conrad Gesner, and were a treatise on British dogs and one on rare animals and plants. His natural history has a more outdoor complexion than that of Wotton, with whose account of thrushes and blackbirds Caius's chapter *De Morinello* may be compared.

Morinellus, a bird common on our sea shores, is foolish but good to eat, and is among us thought one of the greatest of delicacies and fetches a high price. The bird is a mocker. So that as the owl and the bustard by imitation of jumping this by night in candle-light is captured by the motion of the catcher. For if he stretches out his arm the bird extends its wing, if he his leg it does the same. Thus the bird, intent on the man's movement is taken by the fowler, and is inclosed in the net. It is a small bird of the size of a starling, with three front toes and no hind toe, with a black top of its head, white round the eye, and is almost of the colour of a quail if you add a little grey, especially round the neck. I call it Morinellus for two reasons: because the bird is commonest on the seashore, and because it is a stupid bird, which stupidity in Greek is called *μωρότης*. For the same reason we call it Doterel, as if, so to speak, crazy with folly.

The description of the meleagris or guinea fowl, the head of which, he says, is so arranged

Ita ut insideat capiti eo modo quo ducalis pileus illustrissimo duci Veneto si quod jam adversum est aversum fieret,

seems to bring Caius before us in Venice looking at the Doge in ducal cap walking in solemn procession round the piazza of St. Mark or passing by in the Bucentaur in gorgeous state to wed the Republic to the sea; while that of the Doterel shows him in the open country of his native Norfolk.

I have mentioned together Wotton and Caius as the men who first in our College brought zoology into the list of subjects on which a physician should be informed. They had an association outside this College, for Sir John Mason was the patron of both. This statesman, the son of a cowherd at Abingdon, had been an undergraduate at Oxford while Wotton was in residence and became a Fellow of All Souls, and in 1552 Chancellor of the University of Oxford. He was early employed in diplomatic service abroad, and so continued almost to the end of his life. He was English Ambassador at Brussels in October, 1555, and witnessed the elaborate ceremony in which Charles V.—Caesar, as the historians of the time call him—abdicated his imperial crown. Charles, moved by the stage effect which he had himself arranged,

broke into weeping (says Mason), whereunto, besides the dolefulness of the matter, I think he was moche provoked by seeing the whole company do the lyke before there being in myne opinion not one man in the whole assemblie, stranger or another, that during the time of a good piece of his oration poured not out as abundantly teares, some more, some lesse.

The study of modern languages and their literature began in England soon after that of Greek, and with this part of learning our College was connected in several ways. Spanish was the first Continental language in which a Fellow of this College became distinguished. Thomas Doyley of Magdalen College was at Oxford with Sir Philip Sidney and Lyly the euphuist, and Hakluyt, who edited the great series of voyages, all of whom were affected by the taste for the Spanish language and literature which began in England in the reign of Philip and Mary and increased in the time of Queen Elizabeth. He took his B.A. degree in 1564 and his M.A. degree in 1569 and after some medical reading at Oxford went abroad in 1571 to pursue medical studies. He graduated M.D. at Basle in 1581. Throughout these years he continued to increase his knowledge of Spanish, and persevered in the study after his return to London in 1585. He was elected a Fellow of this College in 1588 and physician to St. Bartholomew's Hospital in 1590. He died in 1603, and was buried in the church within the hospital.

The first Spanish dictionary was published in London in 1591 under the title of *Bibliotheca Hispanica*, by Richard Percyvall: Gent. The dedication to "Robert Earl of Essex and Ewe, Viscount Hereford and Bourghchier, Lord Ferrers of Chartley, Baron Louvaine, Master of the Queen's Majestie's Horse and Knight of the Garter," is followed by an address to the reader. In this, after describing the aims and contents of the book and the help he had received from Don Pedro de Valdes and Don Vasco de Sylva, Percyvall says:

In very good time I chanced to be acquainted with the learned gentleman Master Thomas Doyley, doctor in Physicke who had begunne a Dictionary in Spanish, English, and Latine, and seeing me to be more forward to the presse than himself: very friendly gave his consent to the publishing of mine, wishing me to adde the Latin to it as hee had begunne in his, which I performed, being not a little farthered therein by his advice and conference.

The generosity of Doyley seems to have been as great as his learning, and having thus contributed to the dictionary he wrote a short Latin poem in praise of it:

Quas novus orbis opes quas profert India fructus,
Quas mare, quas tellus gemmas aurique fodinas
Has habet Hispanus, Jasonis vellere dives:
Cum populo aurato collubet ergo loqui.
Expetit Hispanus Belgas evincere, regem
Gallorum per vim regno depellere, regnum
Diripere Anglorum, quid non? Cupit esse monarcha
Cum rege hoc tanto, collubet ergo loqui.
Cum quibus aut bellum cupimus, commercia pacem.
Horum sermo placet: facilemque brevemque loquendi
Dat liber iste modum, dat Percyvallus author
Cum populo Hispano quam cito posse loqui.

An English commendatory verse by James Lea prefixed shows that though Spanish was the first modern language in which our College produced a master, French and Italian had before received more attention in the world of London:

Though Spanish speech lay long aside within our British Ile,
Our courtiers liking nought save French or Tuscan's stately stile,
Yet now at length (I know not how) steps Castile's language in
And craves for credit with the first, though latest she begin.

The reading of Greek books as the only true method of entrance to medicine in particular and to learning in general lasted about a hundred years. By that time the way to acquire knowledge, which Hippocrates and Galen made clear by example, had come to be thoroughly understood, and men eager to acquire more knowledge of things from nature no longer needed to be assured that thus only truth could be attained. The last words of the preface of the *De Magnete* of William Gilbert, published in 1600, the year in which he was elected President of this College, show that this stage had been reached:

To those early forefathers of philosophy, Aristotle, Theophrastus, Ptolemy, Hippocrates, and Galen, let due honour be ever paid; for by them wisdom hath been diffused to posterity; but our age hath uncovered and brought to light very many facts which they, were they now living, would gladly have accepted.

The addition of such facts by Harvey, by Glisson, and others in this College and by many other observers all over Europe rapidly brought medicine into that state of constant growth and improvement in which it has ever since continued. But the change was gradual and not sudden. Theodore Goulston, a Censor in 1626 and three earlier years, made

translations of the *Opuscula* of Galen, published in 1640, eight years after his death, which were carefully read and annotated by Harvey. Goulston was, perhaps, the last physician of the Renaissance kind who studied Greek, and through it attained his medical knowledge.

If Gilbert may be regarded as the first physicist of the College the first Fellow who knew much of chemistry was undoubtedly Theodore Turquet de Mayerne, who came to settle in England from Paris in 1611, and was elected a Fellow of our College in 1616. He made many chemical experiments, and applied his chemistry to pharmacy and to therapeutics, making the *lotio nigra*, which has been valued ever since, and bringing calomel into use. He also carried out a long series of experiments on pigments. His varied attainments, his large practice and consequent great experience, as well as his upright character, caused his influence to be great, and he showed to the College the usefulness of knowing something of chemistry, while his habit of taking elaborate notes of cases gave an example which had a most valuable effect on clinical medicine. Sir Theodore Turquet de Mayerne died in 1655.

Linacre, Clement, Wotton, Caius, Doyley, Gilbert, Harvey, Mayerne, and Glisson represent the kind of knowledge with which this College began and that to which it gradually attained in the first century and a half of its existence. Latin was the language of composition and communication. Botany of some kind was an inheritance of physicians from the Middle Ages, improved first by the study of the text of Dioscorides and then by the observations in the field of Lobel, and Gerard, and Parkinson, and many more in other countries. Greek was the most important professional training, diminishing in importance as the effects of reading Greek books became more distinct. The lesson was at last learned and the teacher was no more needed. The value of a knowledge of modern languages had come to be understood. Anatomy and physiology were sufficiently known by dissection and observation to make Harvey's discovery possible. The usefulness of physics and of chemistry had been demonstrated by Gilbert and by Mayerne. Morbid anatomy was considerably advanced and its importance in its relation to clinical medicine made plain in the work of Harvey, and Mayerne, and Glisson. The precise study of disease during life was established by the copious note-taking of Mayerne and the exact observations of Glisson.

The publication by the College of the *Pharmacopoeia* in 1618, for the first edition of which Mayerne wrote the dedication to the King, may be said to have established the study of pharmacology on a sound basis by providing in successive editions of the *Pharmacopoeia* a tribunal before which, as one may say, drugs might be arraigned from time to time to answer for their usefulness and be retained in the public service or dismissed from it according to the decision. The College of Physicians was the sole guardian of medical learning in England at this period, for the universities were inclined to treat the subject as a part of general book learning, only exercising a very slight and varying control over men who wished to take a Bachelor of Medicine or Doctor of Medicine degree. Supplicants were occasionally refused, and it seems reasonable to suppose that this was sometimes on account of insufficient knowledge in the candidate or unsatisfactory evidence of study. The College, from its close connexion with Oxford and Cambridge—to which Universities all its Fellows by residence or incorporation belonged—and by the influence of its recognized supremacy in medical knowledge, was sometimes able to prevent persons of insufficient attainments from admission to degrees. Thus, Simon Ludford, who had failed in his examination before the College in 1553, and tried to obtain a licence to practise in each university, though of most defective attainments, was for a time prevented—at Oxford by an appeal to the visitors and at Cambridge by the influence of Caius—from receiving licence or degree. The refusal had the effect of leading him to improve himself, and he obtained an M.D. degree at Oxford about four years later (in 1560), and in 1563 he was elected a Fellow of this College. His copy of Avicenna is in our library, and in another book of his, *De Dissectione Partium Corporis Humani Libri tres a Carolo Stephano* (Paris, 1545), he has written a copy of Latin verses headed by the words:

Simonis Ludfordi est hoc volumen
Corporis dissecti, anatomicarum
Partium humani, docet hoc volumen,
Et modum, et formam, utilitatem et usum,
Illiteratos.

Absolutis comprobant argumentis
Actiones officia, atque nexus,
Esse quadam, symmetria coacta.
Particularum.

Cullibet membro propriam figuram :
Et situm, cursumque notamque possit,
Nil inexpertum memorat nec ullum
Sectio fallit.

Erutum a scitis Veterum quod pansit :
Posteris charum, Stephanus relinquens,
Munus inculpabile, quo perhenne
Nomen adeptus.

Hicce lectis, coetera quae medendoe
Sunt facultatis, potes experiri !
Evadis tandem ut medicus peritus.
Perge Galenum.

Floccipendas pecuniam, valebit
Ars : thesaurus deficiet, volumen
Sollidis hoc venditum habebis octo.
Totque ego solvi.

Whether these verses are sufficiently bad to have required his continued exclusion from the College I must leave to the distinguished Latin poets whom we have among our Fellows at the present day—to Dr. Robert Bridges and Dr. J. A. Ormerod. I suppose that Ludford did not obtain the purchaser who would pay the eight shillings he asked, as the book is in our library, to which, with the Avicenna, he probably gave it when, his early want of education having been repaired, he was honoured as a Censor.

Edward Browne was admitted a Fellow on July 29th, 1675, when Sir George Ent was President, who had known Harvey well and is honourably mentioned by Dryden in his *Epistle to Dr. Charlton*. Edward, the eldest son of the celebrated Sir Thomas Browne, was 33 years of age when he pledged his faith to the President and to the College, as we have all done, on his admission to the Fellowship, and the silver sceptre which you, Mr. President, have placed before you was on that day in the hands of Sir George Ent.

Edward Browne was already known as a man of letters, for he had published a volume of travels and a translation of a *Discourse of the Cossacks*. The travels had been widely read, and the Duke of Queensbury and Dover, the Scottish statesman, some years later, thought the translation of the *Discourse of the Cossacks* entertaining enough to take with him in his coach when travelling. Edward Browne had had all the advantages of education which a kind and learned father could give him. He was born at Norwich, probably in 1642, and received his school education at the Grammar School in the Close, just within the gate over which Sir Thomas Erpingham, a hero of Agincourt, was then kneeling in his niche as he is to this day. As the author of the *Religio Medici* took his boy to school I can imagine that he pleasantly pointed to the figure and quoted the words of King Henry V in Shakespeare:

Good morrow, old Sir Thomas Erpingham.

The conversation of his home must have been an important element of the education of Edward Browne. There must have been much delight to him in his boyhood in being told the nature and history of the many curious objects in his father's museum, of the narwhal's tooth, then called a unicorn's horn, of the birds' eggs, and of the funeral urns.

Sir Thomas Browne in his writings now and then is as sententious as Mr. Shandy, but his letters to his sons and theirs to him show that his nature had little in common with the selfishness of the Squire of Shandy Hall, who forgot every human feeling in his eagerness to establish the truth of his theories. On one occasion, that of the witch trial, he allowed theories drawn from ancient reading to interfere with human feeling, but in his family affection and in his kindness to the poor, and in a certain simplicity which shines through his readiness for recondite fragments of knowledge and paradoxical antitheses, Sir Thomas Browne shows a resemblance to that immortal example of goodness of heart, Captain Toby Shandy. A visitor in the household of the Brownes has in his writings a passage which represents the spirit which pervaded it:

I can wonder at nothing more than how a man can be idle; but of all others, a scholar; in so many improvements of reason, in such sweetness of knowledge, in such variety of thoughts. Other artisans do but practise, we still learn; others run still in the same gyre to weariness, to satiety; our choice is infinite; others' labours require recreations; our very labour recreates our sports: we can never want either something to do, or somewhat that we would do."²

In such a home Edward Browne was soon ripe for the university, and he entered at Trinity College, Cambridge, in October, 1657, which makes it probable that 1642 is the true date of his birth, and not 1644, as commonly stated, for 13 years was then an unusual age, but 15 years a common one to enter the university.

In 1663 Browne applied for admission to the degree of M.B. He preserved a copy of the supplication which he wrote on the occasion in one of his notebooks. It states that he had studied medicine for six years and had heard the usual lectures and passed through the required oppositions, responses, and other exercises of the kind. He asks that these may be sufficient to allow him to enter into the faculty. He has also preserved a copy of the grace for his admission to the degree of Bachelor of Medicine at the congregation at which the grace is read or at the next. The exercises were matter of reading and of argument, but Dr. Francis Glisson, then Regius Professor of Physic, was careful that these should be duly performed, and it must have been an advantage to Browne to know something of a professor so deep in anatomy and morbid anatomy, and at the same time so exact a clinical observer. Browne seems to have had the opportunity of seeing two bodies dissected, probably at the demonstrations founded by Dr. Caius.

After taking his degree Browne returned to Norwich and continued his studies amid a good deal of enjoyment suitable to his years. The Duke of Norfolk was at that time the greatest person in Norwich, and his palace was in 1663 occupied by his brother Henry, and contained a part of their grandfather's wonderful collection of works of art—the Earl of Arundel, with whom Harvey visited Rome. Edward Browne was one of the guests on New Year's Day at this great house. He dissected a bull's heart on January 2nd and danced at the Duke's palace on the 4th. He dined there on the 5th, and danced again in the evening and again on Twelfth Night. Next day he dissected a dog, and on the 9th the knee-joint of a calf and another bull's heart and the larynx of a bullock. On January 11th he danced at the palace till 2 o'clock in the morning to celebrate his host's birthday. Next day he dissected a turkey's heart and examined the dentition of a monkey. Two days later he went over the monkey's skeleton, and on January 22nd studied the anatomy of a sheep, and the next day prepared the right fore foot of a monkey. At the palace he met Dr. De Veau, a godson of Sir Theodore Mayerne, and then or later Physician to Charles II. De Veau had with him a febrifuge powder, probably of cinchona bark, which he wished to try on a well-marked case of ague. On January 28th Browne studied the anatomy of oxen and the next day dissected a hare and further studied the monkey's skeleton. In February he prepared the skull and bones of the foot of a hare, dissected another hare, a hedgehog, and a badger. He paid at the same time some attention to botany, noting the flowering *Aconitum hyemale* and helleboraster, and gathered many seaside plants. He examined a nasal polypus and saw two patients—a man with consumption and an old man with a fever. He went to London, arriving on February 24th, and next day went to hear an anatomy lecture at Surgeon's Hall and saw a human body dissected—the third he had seen. In the morning, Dr. Christopher Terne, then assistant physician to St. Bartholomew's Hospital, gave a general introduction to the course in Latin and then lectured on the skin. There was a second lecture in the afternoon on the stomach, intestines, and mesentery, and before the lecture Browne was allowed to examine the dissected body in the "anatomising room." He no doubt needed a little fresh air after this well-occupied day, and took a walk in St. James's Park, where he saw the King's zoological collection:

Divers sorts of outlandish deer, guinea-sheep, a white raven, a great parot, a stork which, having broken its own leg, had a wooden leg set on, which it doth use very dexterously. Here are very stately walks set out with lime trees on both sides and a fine Pall Mall.

Next day he heard the third lecture, which was on the suprarenals, the kidneys, and their related parts. He dined with his sister, who lived in Olerkenwell, and attended the fourth lecture in the afternoon. It was on the pleura, mediastinum, and lungs; he went to see them dissected before the lecture. His record of the fifth lecture has not been preserved. The sixth and last, on the afternoon of the third day, was on the anatomy of the eye. Dr. Terne concluded the course with a Latin speech. These six lectures, given on Thursday, Friday, and Saturday, were a course of anatomy of that time. The lecturer was a physician, the dissections were made under his direction by surgeons, the teaching was conducted in their

hall, and was chiefly for the benefit of the members of their company, though friends of the lecturer and others, if properly introduced, sometimes attended. Dr. Terne, who gave the lectures, was a well-read physician, who had studied at Leyden. He gave a Harveian oration, and wrote a thoughtful paper discussing the question, "An respiratio inserviat nutritioni?" but the only part of his writings which has been printed is a pair of Latin verses placed under the portrait of Dr. Christopher Bennet. This portrait is the frontispiece of Bennet's *Tabidorum Theatrum*, which is the fuller edition of the first treatise on tuberculosis published in England.

Hospitali quicumque petis quis incola tanti,
Spiritus egregia hunc consule scripta dabunt.

Browne married Terne's daughter, Henrietta, in 1672.

Dr. Windet, with whom Browne dined on the first lecture day, had practised in Yarmouth, and was a correspondent of Sir Thomas Browne. They agreed in a taste for out-of-the-way subjects and for verbal conceits. Windet at the Restoration brought out two Latin poems. One is a condemnation of the execution of Charles I., and begins with the word "occidimus." The other is on "His Majesty's happy Restoration," and begins with the word "vivimus." A Latin letter, "De vita functorum statu," of which young Browne probably thought fit to mention his father's admiration when on the first day of his anatomy lectures he dined with Dr. Windet, is a production containing much reading, Latin, Greek, Hebrew, and Arabic, and showing a turn of thought not unlike that often displayed by Sir Thomas Browne. The writer discusses the meaning of the word "Tartarus" and debates the precise sense of various Hebrew-Greek words and sentences used in describing the state of man after death, as well as all the opinions expressed by Hebrews and Greeks on the same subject. Windet was evidently a vast reader, but of the same kind as the Bishop of Gloucester, of whom, when Richard Bentley was asked whether Dr. Warburton was not a very learned man, he replied, "Dr. Warburton has a large appetite but a bad digestion." Sir Thomas Browne and Windet had minds fitted with the same kind of subjects, but while the works of Browne continue to appear in new editions and to form part of general reading, those of Windet are never opened. The difference exists in something difficult to express but easy to feel. Dryden has considered such distinctions, and has expressed his conclusion with his usual felicity:

A happy genius is the gift of Nature: it depends on the influence of the stars, say the astrologers, on the organs of the body, say the naturalists; 'tis the particular gift of Heaven, say the Divines, both Christian and Heathens. How to improve it many books can teach us; how to obtain it none; that nothing can be done without it all agree.

On March 1st Browne called on Dr. Joseph Dey, a Norwich man, who practised in Crutched Friars, and as he was out walked on to "Mr. King's, living in Little Britain, an ingenious chirurgeon," who showed him various anatomical preparations. "I being desirous to see the inside of a man's stomacke, hee cut up one for mee which he had by him." In the afternoon he went to see a private museum near St. Paul's, where he was shown a sea elephant's head, a sloth, and an Indian serpent, and then on to Arundel House in the Strand, which contained the famous Arundel marbles. Mr. King, the surgeon, afterwards gave up surgery and took to medicine, and was made Sir Edmund King and physician to Charles II. in 1676. He became a Fellow of this College in 1687, and his picture by Lely is in our dining-room. His papers in the *Philosophical Transactions* show that he was a desirable man for a student to know. He was one of the first persons in London to use a microscope and to pursue histological studies. He also worked at chemistry and entomology, and wrote creditable papers on the habits of ants and on leaf-cutter bees. He had dissected a hundred human brains, and Dr. Thomas Willis, the author of the *Cerebri Anatome*, praises his dissections.

More than twenty years later King took part in the first scene of a memorable tragedy.

On the first of February (says Burnet in his *History of His Own Times*) the King eat little all day, and came to Lady Portsmouth at night, and called for a porringer of spoon meat. It was made too strong for his stomach. So he eat little of it: And he had an unquiet night. In the morning one Dr. King, a Physician and a Chymist, came, as he had been ordered, to wait on him. All the King's discourse to him was so broken, that he could not understand what he meant. And the Doctor concluded he was under some great disorder, either in his mind, or in his body. The Doctor amazed at this, went out, and meeting Lord Peterborough, he said, the King was in a strange humour, for he did not speak

one word of sense. Lord Peterborough desired he would go in again to the bed-chamber, which he did. And he was scarce come in, when the King, who seemed all the while to be in great confusion, fell down all of a sudden in a fit like an apoplexy: He looked back, and his eyes turned in his head. The physician, who had been formerly an eminent Surgeon, said it was impossible to save the King's life if one minute was lost: He would rather venture on the rigour of the law, than leave the King to perish. And so he let him bleed. The King came out of that fit: And the physicians approved what Dr. King had done.

Three days after his visit to Edmund King, Browne returned to Norwich, and for the rest of the month worked at botany, dissected a frog, a rat, and a polecat, did a little chemistry, and was consulted in a case of scurvy. Having filled his mind with information at home, at Cambridge, and in London, Browne was well prepared for the further education of travel. He left home on March 28th, 1664, reached London at midday on the 30th, went by boat to Gravesend and rode thence through Rochester, Sittingbourne, and Canterbury to Dover, whence he sailed to Calais and thence went by Beauvais to Paris. In Paris he lived in a room in the Rue St. Zacharie for seven livres a month and began regular studies at once. He went to four courses of lectures: Dr. Maureau on hernia, Dr. Dyneau on fevers, Dr. Le Bell on surgical operations, and that of Dr. Guy Patin who answered "all doubts and questions proposed" and was a staunch Galenist who laughed at the chemists. Browne also went round the Hôtel-Dieu and La Charité. In September he left Paris and went to Montpellier and studied there for about a month and then went on to Italy, visiting many cities and staying for some time in Rome. He travelled north again with Dr. Paman, a Fellow of St. John's College, Cambridge, who was afterwards public orator and long lived with Archbishop Sancroft and must have been an improving companion as Sydenham valued his friendship. Some of Paman's books are in our library.

Browne went to Venice, and then spent some weeks at Padua studying anatomy. The dissection was admirably done by a demonstrator named Marchetti, who had been instructed by Sir John Finch, "one that in anatomy hath taken as much pains as most now living." This was Dr. Finch, of Christ's College, Cambridge, a connexion by marriage of Harvey. Browne left Padua in April, 1665, and went to Montpellier again, thence proceeding to Paris, which he reached in the middle of June, and attended lectures on botany and chemistry, short courses of about a month's duration. In July he caught small-pox, an event which happened in the life of very many students at universities of that period. Some months later he returned home. He had learned French and Italian. In August, 1668, he went abroad again to Holland, where he visited universities, their libraries and museums, and attended lectures. He went on to Vienna, and there learned much from Lambecius, the librarian, and seems to have learned colloquial Greek. From Vienna he went into Thessaly, and visited Larissa, in order to know the air and place in which Hippocrates practised. He also made a tour in Hungary, and one in Styria and Carinthia. He came home in 1669. He went abroad once more in 1673, visiting Cologne and the Low Countries. He was admitted Fellow of this College in 1675, and elected Physician to St. Bartholomew's Hospital in 1682, and was our President 1704-8. He died in 1708.

I have chosen to consider Dr. Edward Browne in relation to the education of physicians in London in his time, because while his opportunities of learning were excellent they were yet such as physicians often enjoyed. He began life in an educated home, going to the grammar school of his native city, and at the age of 15 years went to the University, where after six years he took the degree of M.B. He had seen some human dissection, but had not done any with his own hands, and had attended some university exercises, probably both lectures and disputations, conducted by Glisson. He had probably read the *Aphorisms* of Hippocrates, of which Ralph Winton, Glisson's predecessor as Professor of Physic, had edited a convenient edition with translations of each aphorism into Greek and Latin verse, and from some passages in his writings he seems to have also read the Hippocratic treatises on air, water, and situation, as well as the epidemics. He had also some reading in Galen. He could write and speak Latin. After taking his M.B. degree he continued his anatomical studies, and worked practically at zoology, botany, chemistry, and pharmacology, and at medicine, parts of surgery, and morbid anatomy. He learned French and Italian, and could speak a little Greek. He used every opportunity of conversing with learned men, such as Swammerdam the

zoologist, Glauber the chemist, and Lambecius the bibliographer. He had read widely—*Purchas, His Pilgrims*, the travels of de la Martinière in the Arctic regions, Raleigh's *History of the World*, Ashmole's *Order of the Garter*, and the Duchess of Newcastle's *New Blazing World*. His father advised him to study Cicero, and not to read much of Lucretius. Quotations may be taken from it, says Sir Thomas, but otherwise I do not much recommend the reading or studying of it, there being divers impieties in it, and 'tis no credit to be punctually versed in it; it containeth the Epicurean natural philosophy.

Besides his university examination, which was a kind of disputation, Edward Browne was no doubt examined in this College for admission as a candidate in 1668, after he had been engaged in medical studies for about ten years. He took his M.D. degree at Oxford in 1667, when he had studied nine years, and in his own University in 1670. This degree was probably given on proof of study in the faculty. It was chiefly in less regulated periods and work that this course of education differed from that of a physician in our time. There were as yet no organized schools of medicine in England, and except in this College there was no thorough examination of candidates.

The study of history is most worth pursuing when the consideration of the past can be made useful to us in the present. The lesson, "*Ars longa, vita brevis*," is plain enough wherever we contemplate the attempts of men to learn and to teach medicine. Further than this, we may learn that it is only subjects thoroughly learned that are of value, and learned so that the student can feel that he has sought out things for himself, and is not resting on the dicta of a teacher.

Last, we may conclude that medicine in itself, with its essential preliminary anatomy, contains sufficient opportunities of training in every form of observation and of logical deduction from what is observed and, that for the rest, a mind which has been opened by a sound literary education is that best adapted to follow the lifelong study of medicine which is the duty of every physician. These are the conclusions to which I have been led by a study of the history of the education of physicians in London from the time of John Mirfield to that of Edward Browne, from the Middle Ages to the time when the methods of study which we now follow began to be used.

REFERENCES.

- ¹ Harley, 3745, in British Museum. ² Bishop Hall, *Epistle to Mr. Milward*.
³ MS. in British Museum, Sloane, 1797.

A CASE OF SIMPLE STRICTURE OF THE COMMON BILE DUCT TREATED BY A PLASTIC OPERATION.

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THE following are the notes of a case of fibrous stricture of the common bile duct, in which I practised with success a plastic operation upon the duct.

HISTORY.

M. S. B., aged 63, had suffered for ten to twelve years from the following symptoms: Pain across the epigastrium, rather more on the right side, of the nature of cramp, radiating at times all over the abdomen, and especially to the left costal margin, and to the back of the right shoulder blade; vomiting, which came on soon after the pain and very often gave relief to it, and jaundice, which was first noticed only eight years ago. There have been "dozens" of attacks of pain followed by vomiting and jaundice. In the end of 1902 and the early part of 1903 the jaundice did not disappear for four months; during this time there were still attacks of pain followed by a deepening of the jaundice, and occasionally slight rigors were experienced. In April, 1903, a gall stone weighing $\frac{3}{4}$ oz. was passed; it measured $1\frac{1}{2}$ in. in length, and was ovoid in shape, "like a plover's egg." After this stone passed he was quite well up to December, 1903, when there was an attack of colic followed by jaundice. Until August, 1904, he remained free from attacks; then had a very severe attack of pain followed by jaundice and vomiting. He remained jaundiced up to the time of operation. The jaundice had varied a little, being deeper after attacks of pain, but, on the whole, has become steadily deeper, and for the last six to eight weeks, during which he had several rigors, it has not lessened at all, but the colour has become progressively darker. He has lost 3 st. in weight, 1 st. in the last eight weeks.

A diagnosis of stone in the common duct was made, and operation advised.

OPERATION.

The operation was performed on December 10th, 1904. The abdomen was opened through a vertical incision over the right rectus muscle, the upper end of the cut being prolonged inwards along the costal margin to the middle line. The gall bladder was slightly adherent, its walls a little thickened, and there were many stones in its cavity. These were removed, but the gall bladder was not extirpated, in view of the conditions found in the ducts. The common duct was found dilated, forming a cyst-like swelling. It was aspirated, and 11 oz. of bile were withdrawn. The needle being removed, an incision was made into the duct, and a stone the size of a nutmeg withdrawn at once; six other stones were found in the duct. After the dilated duct had been cleared of all easily discoverable stones by a scoop, the finger was passed in the duct upwards to the bifurcation of the hepatic duct, which was also dilated. The finger was then passed downwards, but no orifice could be felt; the inside of the duct seemed smooth everywhere, and no evidence of a passage from the cyst could be discovered. The outside of the cyst was then cleaned by gauze stripping, and the common duct below was defined. It was dilated also; an incision was made into it, and after a little difficulty a probe could be passed upwards into the dilated cyst-like duct. It was clear, then, that there was a narrow stricture of the duct, and that the dilatation of the

Fig. 1.—Showing the line of incision through the stricture.

Fig. 2.—Showing the duct laid open at the point of stricture.

upper part had resulted from the obstruction. Between the two openings now made in the duct, one above and one below the stricture, an incision was made, dividing the stricture completely. Its nature was then seen. It was cicatricial, hard, indurated, and clearly the result of an old ulcer. An attempt was made to perform a plastic operation upon the duct, but it became evident that, despite the distension of the duct, it would be necessary to free the second portion of the duodenum, to "mobilize" it after the manner of Kocher. This was done, and the plastic operation was then readily performed. The stricture, which had been freely divided by a vertical incision, was now abolished by the approximation of the edges of this incision in a transverse direction. A reference to the diagrams will show how this was done. A through-and-through suture of catgut was used, threaded upon an intestinal needle. The transverse wound was not completely closed, sufficient room being left for the introduction of two rubber tubes one of which passed upwards into the dilated common duct and the other downwards towards the ampulla. Each tube was fixed with a single catgut stitch. The tubes were removed on the eleventh day. For four weeks bile in large quantities, in fact all the bile, passed through the wound. Some pancreatic juice also escaped in this way, as was shown by the digestion of the skin around the wound. In the fifth week, bile began to pass into the intestine, and in the ninth week the wound was entirely closed. The patient was sitting up in bed from the first, and was allowed to get up in the third week.