The FitzPatrick Lectures

HISTORY OF MEDICINE.

Delivered in the Royal College of Physicians.

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LECTURE I.

[ABSTRACT.]

It is right that before entering on the subject of these lectures I should in a few words explain the origin and aim of this new foundation. This lectureship owes its existence to the munificence of a lady, Mrs. FitzPatrick, who desires in this way to honour the memory of her late husband, Dr. FitzPatrick, a Member of this College, a physician of great worth, learning, and accomplishments; and at the same time to promote an object which Dr. FitzPatrick himself had much at heart—the advancement of the study of medical history. This pious and generous gift deserves not only what have been gladly rendered—the most cordial thanks of our College—but due recognition from all who are interested in the progress of the two sciences, medicine and history, which it is designed to serve.

In assigning the history of medicine as the subject of this lectureship, the foundress has been guided by the wise advice of our eminent Fellow, Dr. Norman Moore, who was an intimate friend of our deceased Member.

While, therefore, the warmest thanks of the College are due, and have been already expressed, to Mrs. FitzPatrick for her munificent gift, we must also recognize the great services of Dr. Norman Moore, to whom are due, we understand, the conception of this scheme, and the plan under which it is to be carried out. It may seem to many, as it seemed to myself, that he would most appropriately have filled the post of the first FitzPatrick lecturer. I would rather that he had been here instead of myself. It was only when I was assured that he, with generous self-abnegation, but decidedly, declined to be appointed, that I felt justified in accepting the honourable task which the President and Censors have entrusted to me. I can only say that I will do my best.

We must confess, with some shame, that our own country has been and is behind most civilized nations in the bulk and value of its contributions to the history of medicine: Germany, France, and Italy have produced on this subject works both profound and brilliant, which remain our standard authorities. The smaller countries, such as Holland and Switzerland, have not been behindhand; while our cousins across the Atlantic, the American physicians, are now displaying characteristic energy and zeal in the study of the antiquities of medicine.

Compared with the interest shown, and the positive results achieved in relation to medical history by the medical profession in all these countries, our own countrymen have displayed, we fear, lamentable apathy and but little industry. In one department of the subject only, that is in medical biography, have we any important works to show; for the Roll of our College as written by our late librarian, Dr. Munk, is certainly unequalled, if not almost unparalleled, in any foreign country.

But in general it is true, that while England is distinguished above other countries for the zeal with which her political, social and literary history has been investigated, and particularly for the unrivalled series of records and memorials which have been collected for these investigations; the history of science generally, and especially of medicine and of medical institutions has been conspicuously neglected.

I do not forget the excellent work which has been done of late years in connexion with the history of our great Colleges of Physicians and Surgeons, and in relation to the history of our universities. But it is remarkable that while we have done little for the history of medicine in general, we have done relatively almost less for the history of medicine in our own country. The history of medicine in Britain, it is not too much to say, remains to be written. If in the standard histories of medicine, chiefly German and partly French, we may sometimes think that the history of British medicine is inadequately represented, this is not the fault of the historians. It is our fault for not having supplied them with adequate materials.

The foundation which is this day inaugurated is the first attempt to have the history of medicine taught or expounded in this country. In considering, therefore, what department of the vast field of medical history could be advantageously treated within the narrow limits of these two lectures, it seemed best to begin with that part which has been most neglected, the history of medicine in our own country.

The range of the inquiry cannot be wide. It is limited no less by the powers and knowledge of the lecturer than by the short time at his disposal. It would be impossible to cover more than a small period of history, and that imperfectly. But if we were to attempt, however inadequately, to lay something like the first stone of the history of English medicine; to make a rough beginning which it is to be hoped may be revised and corrected, as well as continued by other and better equipped investigators; this attempt, humble as it is, may be not without fruit. And the words English medicine, which it seems necessary to employ, imply a still further limitation. There was no doubt in all the Celtic countries a traditional popular medicine which had little or nothing to do with the subject of these lectures. In Ireland there was in early times what may be called a learned medicine also. In Wales there seems to have been something like an organized medical profession. But with Celtic medical history the lecturer is totally incompetent to deal even in the most superficial way.

It remains, then, to begin with the earliest record of the English people settled in England, our Anglo-Saxon ancestors, and to try and form for ourselves some idea of what medical science and medical practice meant in those early times. It is there that we find the actual beginning of English medicine. Now, although the history of medicine among the Anglo-Saxons has never been written from a medical point of view, a large amount of material has been collected by the labours of non-medical scholars. During the past generation nearly all, if not the whole, of Anglo-Saxon literature bearing on science and medicine has been collected and translated into modern English by a succession of learned and laborious inquirers. It is to such men as Mr. Thomas Wright, the Rev. Oswald Cockayne, the editors of the Early English Text series, Professor Earle, and others, not forgetting the important contributions made by German philologists, that we owe these important materials for medical history. The following sketch of medicine in Anglo-Saxon times is entirely based upon the labours of these eminent men; and, indeed, to one quite unacquainted, as the lecturer is, with the Early English or Anglo-Saxon tongue, it could not be otherwise.

The beginning of Anglo-Saxon civilization and learning must be dated from the introduction of Christianity into Saxon England by Augustine in 597 A.D. This must also be taken as the beginning of Anglo-Saxon medicine. For, though there are some vestiges of earlier popular medical beliefs based on the heathen mythology, they are comparatively scanty and unimportant. Whether the Christian missionaries from Rome introduced into England, as modern missionaries often do into heathen countries, some of the medical lore and practice with which they were familiar—that is, the medicine of the Latin world—it is very difficult to say. The earliest hint of anything like medical teaching in England is in connexion with the school at Canterbury founded by Archbishop Theodore in the latter half of the seventh century—about 670. Theodore was a Greek monk from Tarsus, who with a learned colleague, the Abbot Adrian, taught both Greek and Latin with such success that many of his pupils, Bede says, knew both the ancient tongues as well as their own. This proficiency in Greek may have had some importance in the study of medicine; but the question is a difficult one. The only evidence that some medical lore was taught at Canterbury rests upon an authentic story told by Bede of one of Theodore's pupils, John of Beverley, afterwards Bishop of York. This divine—who had a reputation for working miracles—being called in to visit a nun in whom bleeding had been followed by dangerous symptoms, found that she had been bled on an improper day. He severely rebuked those who had ordered the bleeding, and quoted some cautions on the subject which had been taught him by his master, Archbishop Theodore. This is an isolated fact, but shows that learned men among the Anglo-Saxons had some pretensions to medical knowledge and imparted it to their pupils.

It is not clear that this was true of the greatest name in the Anglo-Saxon Church, the Venerable Bede (died 735), whose learning was as remarkable as his piety and zeal. Bede wrote, beside theological and historical works, some scientific treatises *On the Nature of Things*, and *On Times or Seasons*,

dealing chiefly with astronomy and meteorology. There is nothing distinctly medical in his known writings, but a manuscript fragment in the British Museum of later date and doubtful authenticity contains certain rules as to the dangerous days for bleeding, which are attributed to him. This fragment is so late as to have no authority, but the fact that it refers to a subject which Bede's episcopal predecessors, Theodore and John of Beverley, thought of great importance, and one not unconnected with the subject of his known works, gives it some plausibility. In Bede's writings there are references to "leeches" or physicians, showing that there was something like a regular medical profession.

After this the only documents bearing on medicine in England belong to the kingdom of the West Saxons, and the first date of any importance relating to medicine is that of King Alfred the Great (848-901). This great ruler, who took as much pains to educate his people as to give them laws or to make them successful in war, translated himself, and caused to be translated from the Latin into English, books of history and philosophy, but nothing bearing directly on medicine. By this, however, he set the example which was afterwards followed in the translation of purely medical works into the vernacular. He kept up relations with Italy and the East even as far as India, by which books of all kinds, probably some medical, were brought into England. It appears from an Anglo-Saxon MS. that the Patriarch Helias, of Jerusalem, sent to Alfred from the Holy Land medical prescriptions relating to such drugs as scammony, tragacanth, and others, the produce of Syria, and also to the celebrated Greek compound medicine, the "theriaca of Andromachus," or "triacle," which could not have been made in England. This shows some interest on Alfred's part in the progress of medicine.

Soon after the death of Alfred is the date of the most important Anglo-Saxon medical work which has been preserved. It is a "Leech Book," or treatise on medicine in two books. A third book which is appended evidently does not belong to it. By an inscription at the end we learn that it was the property of one Bald, who ordered one Cild to write it. The presumption is that Bald was a "leech" or physician, and that Cild was the writer; but whether the writer was merely the scribe, or the author, that is, compiler, is not quite clear. This book is a sort of treatise on diseases, beginning with the head and going down to the feet, as was the custom of the later Greek physicians, and almost universally followed in the Middle Ages. Many diseases are mentioned, but the account of their pathology and symptoms is very meagre. The most important passages bearing on these subjects, making, according to the editor, Mr. Cockayne, perhaps one-fourth of the book are borrowed without acknowledgement from later Greek physicians, especially from Alexander Trallianus, and in a few cases from Paulus Aegineta. The question naturally arises whether the Anglo-Saxon compiler read these authors in the Greek or in a Latin version. For various reasons, which it would take too long to enumerate, it is probable that the latter supposition is correct. Some late Latin writers, such as Marcellus Empiricus and Plinius Valerianus, were also laid under contribution, though none of these authors, Greek or Latin, are named except Pliny. In the book two Anglo-Saxon leeches, Dun and Oxa, are mentioned, and reference is made to "the leeches" generally; so that it supplies evidence of the existence of a regular medical profession. The patriarch Helias is the only other person quoted.

The treatment of disease is generally discussed at greater length than the signs and symptoms. Many prescriptions are borrowed from the Greek physicians, but many cannot be thus traced. A conspicuous feature is the great abundance of herbal medicines prescribed. The Anglo-Saxons were acquainted with a large number of native herbs, a knowledge which could not have been acquired from their Greek authorities, and used them empirically along with some exotic drugs. Their pharmaceutical methods were exceedingly simple, herbs being boiled in water or soaked in beer, vinegar, or milk; sometimes mingled with honey. Ointments were made with butter.

The surgery of the Leech Book is extremely rude. Wounds were treated with decoctions or poultices of herbs and with honey. For broken bones similar applications are recommended, and the limb was to be wrapped in softened elm bark. In one place a splint is spoken of. Amputation is advised for gangrenous limbs, but no details are given as to the method of performing it. An operation for harelip is described, but hardly in such a way as to show that the writer had actually performed it. Blood was taken by vene-

section, cupping and scarification. Various kinds of baths are recommended and carefully described.

Besides these methods of treatment the Leech Book contains a number of charms, incantations, and magical rites, but not so many as some others of the Anglo-Saxon works. The discussion of this subject is deferred.

The Leech Book of Bald is found in one MS. of the British Museum, and has been printed in the collection called *Anglo-Saxon Leechdoms*, vol. ii., edited by the Rev. O. Cockayne, and published in the Master of the Rolls Series.

The general impression derived from this book, which is our only example of the familiar manual of the Anglo-Saxon leech, is that it shows little or no originality but a praiseworthy zeal in trying to obtain the best available knowledge on the subject, new or old, English or foreign. There is nothing in any Continental literature of the same period, or for some time later, at all comparable with it. Indeed, out of Italy there was hardly any scientific literature, and none at all in any vernacular language. In this respect the medical literature of the Anglo-Saxons was as much without a rival as their general literature. The misfortune was that this compilation was made when the level of European medicine was at its very lowest. The works of the ancients were mostly inaccessible and nothing else had arisen to take their place. The school of Salerno, the oldest medical school in Europe, had not yet come into prominence.

The next important book which requires notice is the Anglo-Saxon translation of what is known as the *Herbarium of Apuleius*, a book of medical botany, illustrated with coloured figures. Of this translation no less than four MSS. have survived, a remarkable number considering the scanty remains of Anglo-Saxon literature which exist, and showing that the book enjoyed great popularity. The most remarkable MS. is one in the British Museum which must originally have been a magnificent book decorated with coloured drawings. It is believed to have been written between 1000 and 1050 A.D.

From this and other MSS. the text has been printed in the Rolls Series, edited by Mr. Cockayne, with a version in modern English, as volume i of *Anglo-Saxon Leechdoms*. The original work is in Latin, and is attributed to a possibly fictitious writer called Apuleius Platonius. It is believed to date originally from about the fifth century, but no copy anything like so old as this is known. It was for centuries the most popular botanical book in Europe, being multiplied in numerous Latin MSS. up to the fifteenth century, when it was first printed.

Associated with this book in a large number of Latin MSS., as in the Anglo-Saxon version, are three other short Latin treatises, one on the plant *vettonica* or *betony*, attributed probably falsely to Antonius Musa, the Physician to the Emperor Augustus. There are also a series of descriptions of medical plants professedly taken from Dioscorides, and a treatise on medicines obtained from animals bearing the name of Sextus Placitus, a Roman physician of the fourth century, all with coloured figures. Who first united these four books in one collection is not known; but taken together they formed a sort of compendium of medical natural history. The essential feature in all of them was the series of illustrations, which as the actual descriptions of the objects are few and meagre, served or were intended to serve for the identification of the plants and animals named by the original writers. A large number of Greek and Latin synonyms are given for most of the plants, and an enumeration of the diseases for which they were supposed to be useful.

All this constitutes according to our ideas a very poor book, whether from the botanical or medical point of view. The accounts of medical uses are meagre and often trivial. Even the illustrations, having been handed down by a long succession of copyists, with ever-increasing remoteness from the original objects, are conventional in drawing, and often quite unrecognizable in their present form whatever they may have been in the original. The whole bears no comparison with the genuine work of Dioscorides on "*Materia Medica*," which is the great treasury of ancient science relating to the natural history and uses of drugs.

Nevertheless, the Anglo-Saxons showed their usual intelligence and zeal for knowledge in translating it. It was the best book on the subject they could find; they turned it into their own vernacular tongue, and carefully copied the precious illustrations, by which they no doubt hoped to identify the plants of their own woods and fields, and thus find the key to their virtues and uses as understood by the ancients. This was a distinct step towards the advancement of botany in England; a definite scientific achievement; and,

as such, without a parallel then or for some time after in any European country.

With regard to the coloured figures of plants which occur in two of the Anglo-Saxon manuscripts, most conspicuously in that splendid book already spoken of, a few words must be said. It may cause surprise, and be thought a fault, that the artists did not supply original figures of the plants described. Anglo-Saxon art, which had reached so high a level in decoration, and showed considerable skill in drawing the human figure, might be thought to have been equal to this task. But to supply new figures would not have carried out the object they had in view, which was identification. The artists, therefore, contented themselves with copying the traditional figures which had already passed through the hands of many generations of copyists. Rude as these figures are, they represent a real survival of old Graeco-Roman art; and even in their most degraded form preserve some of the features characteristic of classical art in general. The figures are usually nearly symmetrical on both sides, and

Fig. 1.—SATYRION = ORCHIS. From Anglo-Saxon MS. translation of Apuleius Platonius, Brit. Mus., Cottonian, Vitellius, C. III, fol. 27.

show a sense of balance and proportion which may be fairly regarded as classical; also they are not so much portraits of individual plants as diagrams constructed from a general knowledge of the object. (Figs. 1, 2, and 3)

If we compare the series of figures in the various manuscripts we find them for the most part the same, though with occasional varieties, the figures of the same plant in different manuscripts being sometimes quite unlike.

The temptation was for a clever artist to treat the figure from a decorative point of view, rather than as a mere transcript from Nature. Occasionally he allowed his imagination free play, and produced figures which are plainly fabulous. This is especially the case with such plants as the mandragora, of which many fabulous stories were told. The forked tap root of this plant was thought to be in the shape of a man, and hence the artist gave it not only two legs, but arms and a trunk. The head is here represented by a tuft of leaves, but in other (probably later) drawings, a regular human head with all its features complete is pictured. It

Fig. 2.—"GLADDEN" = SCILLA. From Anglo-Saxon MS. translation of Apuleius Platonius, *ibid.*, fol. 34.

was regarded as dangerous to pull it up, because (according to some stories, but not in this text) it uttered a shriek, which brought death to the hearer, or at least madness. Hence it was to be cautiously loosened in the earth, and tied with a cord. The other end of the cord was to be tied to the neck of a hungry dog to whom meat was offered, so that he could not reach it except by tugging up the plant. It is not

Fig. 3.—MANDRAGORA. From Anglo Saxon MS. translation of Apuleius Platonius, *ibid.*, fol. 57.

recorded (at least by Apuleius) that anything happened to the dog (Fig. 3). Of this plant the Anglo-Saxons had of course no practical knowledge; they merely translated the account in the Latin manuscript. These features are clearly seen in some copies now exhibited of the drawings from the manuscripts.

This seems the opportunity to say something about the botanical knowledge of the Anglo-Saxons generally. It must not be supposed that they derived their knowledge of their native plants from Latin and Greek sources. A large number of medicinal herbs are named in the various prescriptions of the *Leechdoms* which are not included in the translated herbals. We have another source of knowledge in the "glossaries" which give the Anglo-Saxon equivalents for Latin and Greek names of plants.

Of these glossaries no less than six, written before the middle of the twelfth century, which may be taken as the extreme limit of Anglo-Saxon literature, have been preserved. They show the keen interest which our forefathers took in the knowledge of herbs. From these and other sources, Mr. Cockayne has compiled an exhaustive list of the Anglo-Saxon names of worts and trees, amounting in all to between 700 and 800. Omitting all mere transcriptions of Latin names, synonyms, and some names which do not strictly belong to the period now considered, about 500 remain, which are either pure English names or Latin and Greek words so altered as to have become vernacular. This is a very large number. The herbarium of Apuleius, with the additions from Dioscorides, gives only 185 names; and of these some were exotic plants which the Anglo-Saxons could not identify. Evidently, then, a large surplus remains which represents an original English nomenclature of native plants.

That the Anglo-Saxons had 500 botanical names would not necessarily show that they knew 500 species, for some may have been inaccurate or synonymous; but it is evidence of a much more extensive knowledge of botany than they have been generally credited with. Indeed, this science seems to have stood at a higher level in those days than in mediaeval times, when little was added except some French names, and much was forgotten. On the whole, we must agree with the hard saying of Professor Earle that "there was a great decadence of botanical knowledge in England between the eleventh and the sixteenth centuries."

In the next lecture some other books in the Anglo-Saxon medical library will be considered, and also the charms and magical rites which occur in many of them.

The Croonian Lectures

ON

MUSCULAR MOVEMENTS AND THEIR REPRESENTATION IN THE CENTRAL NERVOUS SYSTEM.

Delivered before the Royal College of Physicians of London.

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LECTURE III.

[ABSTRACT.]

MOVEMENTS OF THE HEAD.

I HAVE not much to add about the muscles which are usually given as flexors and extensors, adductors and rotators of the head, except with regard to the sterno-mastoids which are the chief flexors of the head, and they can be seen strongly acting when a person is told to raise his head from the pillow when lying on his back, and when this is done powerfully the recti abdominis also contract to fix the sternum, as was pointed out by Winslow.¹ These two sets of muscles are associated together in certain rhythmical spasmodic contractions, as in a case which was under my care lately, where a man had clonic spasm of both recti abdominis, and also in both sterno-mastoids. In addition to the sterno-mastoids the platysma myoides, the omo-hyoids, and the other depressors of the hyoid bone act. The only muscles which can be felt to contract on extension of the head are the clavicular part of the trapezii, the complexi, splenii capitis, and probably the trachelo-mastoids. The sterno-mastoids have been described as extensors of the head, when the head is in the extreme posi-

tion of extension, but I made some observations on this point, and I failed to find that they acted in any position as extensors of the head.

THE RESPIRATORY MUSCLES.

In dyspnoea one of the first extraordinary muscles of respiration to come into action are the sterno-mastoids, and as these muscles then take their fixed point from the skull, the head has to be fixed by the extensors of the head. I have never seen any action of the pectoralis major in dyspnoea, and I think that the action which is attributed to this muscle is really performed by the pectoralis minor. The origin of the pectoralis major from the cartilages of the ribs and the direction of its fibres is also against its having much power as an inspiratory muscle, and it does not come into action till the end of a forced inspiration. Of the other extraordinary muscles, the latissimus dorsi, the serratus magnus, the scaleni, and the claviculo-occipital fibres of the trapezius are the chief that can be observed. The serratus magnus I have observed not to be acting in one case of severe dyspnoea.

With reference to the expiratory muscles, and especially those used in such violent efforts as coughing and sneezing, I would refer to the latissimus dorsi. I observed a few years back that it is a powerful expiratory muscle, and this is an action which any one can prove for himself by putting the hand on the posterior fold of the axilla, and on coughing a strong contraction of the latissimus dorsi will be felt. This muscle acts also as an inspiratory muscle, using the fibres which take origin from the lower ribs to elevate them, and therefore it is a muscle which acts in both inspiration and expiration, a circumstance which it is rather difficult to explain. In expiration it doubtless acts by compressing the posterior part of the abdomen, in which action it is joined by the external obliques and recti muscles, so that the abdominal cavity is compressed in all directions; and as the origin of the latissimus dorsi from the lower ribs interdigitates with the origin of the external oblique, and as this contracts violently in expiration, it seems probable that the costal origin of the latissimus dorsi in expiration acts to fix the ribs to allow the external oblique muscle to act with precision. The lower part of the trapezius also contracts in expiratory cough, but whether its action is for the purpose of fixing the scapula it is difficult to say. The action of all the respiratory muscles is bilateral, and the relation between the bilateral and the unilateral actions of the latissimus dorsi will be referred to later on, but the time at my disposal will not permit me to say anything about the movements of the lower limb or of the ocular or facial movements.

ACTION OF THE ANTAGONISTS.

It is necessary in any account of the action of muscles to consider the various views which have been held as to the action of antagonists. The antagonists of a movement are those muscles which move the joint in a direction which is diametrically opposed to the movement.

Winslow considered that to move a part all its muscles, including the antagonists, co-operate, but he makes the important proviso that the want of their action is supplied by the weight of the part or by external resistance. This limits very considerably the occasions when, according to Winslow, the antagonists act, for if they do not act when a movement is being performed against gravity, or when any resistance has to be overcome, the occasions are narrowed down to unopposed movements taking place in the horizontal plane, where gravity cannot act. Such a movement would be that of flexion or extension of the terminal phalanges of the fingers in the horizontal direction, or of the elbow in the same plane, or of rotation of the head to the right or the left.

In his Croonian lecture before the Royal Society, John Hunter² describes the actions of muscles as immediate, producing immediate action of the part, the secondary producing the assistant supporting regulating actions, as in walking, when the right leg moves, the muscles of the left side of the trunk act to support the whole on the left leg.

Duchenne states that he has demonstrated experimentally that all the movements of the limbs and trunk result from a double nervous excitation by virtue of which the two orders of muscles.....the impelling and the moderating associations are put simultaneously into action, one to produce the movements, the others to moderate them. Without.....this *entente* of the antagonists the movements lose inevitably their precision and certainty.

I gather from this that Duchenne considers that in all voluntary movements the antagonists take part. On this subject interesting papers have been published by Beaunis³