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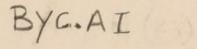
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The Story of some who deserted Medicine yet triumphed

BASED ON THE LINACRE LECTURE DELIVERED AT CAMBRIDGE 6 MAY 1936

#### BY

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A<sup>N</sup> eponymous lecture bearing a name so honoured calls for reference, however brief, to the great scholar and physician who endowed it and whom we commemorate to-day.

Thomas Linacre (1460-1524) was a child of the sister University of Oxford. During undergraduate days he had formed friendships with Grocyn and Latimer, and these names stand today as the Oxford triumvirate with whom true English scholarship begins. At the age of 24 he was elected a Fellow of All Souls. Like his teacher, William de Selling, and like Harvey long afterwards, he was attracted to Italy by the scholarship there coming to new birth. In Florence he shared with Piero and Giovanni de Medici (afterwards Leo X), the instruction given by Poliziano, and he graduated at Padua as in due time did Harvey. Of Linacre, Thomas Fuller says that on his return to England "he brought languages along with him and was the first restorer of learning in our Nation. It is questionable whether he was a better Latinist or

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Grecian, a better grammarian or physician, a better scholar or man for his moral deportment. By his endeavours Galen speaks better Latin in the translation than he did Greek in the original", an opinion first held by Erasmus himself. Of Linacre and of Caius, Fuller says that they were the two "Phoenixes of their Profession and of our Nation".<sup>1</sup> Linacre was fortunate in the moment of his birth. Coming into the world after its intellectual sleep of more than 1000 years, at the moment when opportunities for the new learning of long-forgotten truths had but recently been created, when man's thought, rarer, intenser, was self-gathered for an outbreak, and chafing for escape, he sought in Italy, where all the world's scholarship and its greatest teachers were then to be found, that inspiration and guidance which were to make him, when he returned to his own land, the apostle of learning. During his life more highly esteemed as scholar than as physician, such men as Eras-

<sup>1</sup> Fuller wrote: "Yes, I may call these doctors, the two Phoenixes of their profession in our Nation, and justify the expression, seeing the latter in some sort sprang from the ashes of the former." Their joint monument in old St Paul's was surmounted by a phoenix.

mus, Bude, Aldus made him their friend and regarded him as their intellectual equal. In Greek he was "a prodigy of learning". Richard Pace tells us that rhetoric and dialectic equally claimed him as their own, and he speaks of a brilliant disputation against senior physicians on his graduation. To his teacher Leonicenus (1428-1524), Professor of Medicine in Padua, Bologna and Ferrara, a great medical humanist, he was deeply indebted; a debt he repaid to scholarship by his teaching both of Erasmus and St Thomas More. As a physician we now remember him chiefly as a founder and the first President of the Royal College of Physicians, and also as physician to Henry VIII, Cardinal Wolsey, Colet, and many others distinguished by high position at Court, or by scholarship. He was regarded as foremost among philosophers. To-day, we gratefully repeat the annual tribute this College and University pay to his illustrious memory.

As corollary to this brief record of Linacre's vagrant gifts to classic learning, to scholarship, philosophy and dialectic, I invite your attention to the many varied gifts that medicine has through other truant disciples made to science, to literature, to law, to the State.

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The bond between medicine and science is ancient. In Egypt nearly six thousand years ago, when Zoser was Pharaoh and was building at Sakkarah the step pyramid—now the oldest stone building in the Eastern hemisphere—his chief Lector, Priest, Architect, Physician, Grand Vizier, was one justly named Father of Medicine, Imhotep. He was the First Truant.

Is it credible that such imposing and beautiful works as this eternal pyramid and its satellite temple could have been erected without that kind of informed knowledge based upon repeated experience from which the word "Science", in however rudimentary a sense, can hardly be withheld? Here are seen fluted columns, exquisitely designed and marvellously wrought, nearly 2000 years before their alleged creation in Greece. The secret of their origin is revealed as being due to the pressure of papyrus reeds bound round soft columns of Nile mud until drying and hardening made them strong and able to bear weight; when the reeds were removed the columns were fluted. Yet each corner at a wall's end is carved out of a single stone, instead of being automatically made by the laying of two stones end-to-side. When at last

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the Greeks came to Egypt they realised that the gospel of Imhotep tallied with that of their own divinity, Aesculapius, and Imhotep was deified. If by Science we mean applying to the physical world methods of observation, of comparison, of critical judgment and of planned experiment, then a form of science, however embryonic, had assuredly long been the possession of the ancient Egyptians. The existence to this very hour of the multitude of formidable architectural works in Egypt, and of perfectly proportioned furniture for daily use, is the clearest evidence that, in respect of the laws of physics, no small understanding had already been gained. The Ahmes papyrus of 1700 B.C., founded upon a still earlier work, gives further evidence of knowledge of certain laws of mathematics. There is, however, no evidence of sound appreciation of scientific idea; and science must surely be regarded as the "special application of rational ideas to the known physical Universe".

In the earliest stage of man's communal existence, the lives of people brought together for security and maintenance depended in large measure upon the application of laws gained by mass experience and upon recognition of laws,

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not only enabling them to provide for their material sustenance, but also determining individual conduct and social relations. Certain crude generalisations, rough indeed but effective, were surely the first proofs of the existence of a scientific method of approach to problems concerning life and livelihood. It was in the fertile valleys of the Tigris, the Euphrates and the Nile that such known events first occurred. And in the same sense in which we derive Greek art through Minoan from Egyptian, so may we derive Greek science from the rudimentary form first developed in such manner in the valley of the Nile. Thales of Miletus (640-550 B.C.) we honour as the first evangelist of science in Europe. Journeying to Egypt on affairs of commerce, he there learned those elementary forms of mathematics and of science which had long been the possession of a people to whom we owe works of art which for design and exquisite craftsmanship have even yet perhaps hardly been surpassed. Returning to Miletus, Thales, inspired by all that he had learned, abandoned business, and consecrated his life to the further pursuit of the knowledge encountered on his travels. He it was assuredly who lighted the

lamp of science that was to burn so brightly for 800 years; then to grow dim almost to extinction; then again to glow with new and increasing brilliancy down to our own time.

The science of the Greeks from first to last may be claimed as the child of medicine. Intellectual or technical assault upon all branches of human knowledge depends upon principles brought into existence or notably enlarged and advanced by those engaged in the practice of medicine. That the world in which we live is governed by laws; that we formulate such laws after close observation of and long brooding upon phenomena; that these are also considered in the mind apart from their material embodiment; and lastly that by experiment we test the validity of these laws; this whole scientific idea we owe, then, to Greece. First among Greek observers we place Hippocrates, to whom, unfairly, is given the title of Father of Medicine, the due of Imhotep. By applying his mind to diseases, by recognising and differentiating their symptoms, and by grouping these with conditions similarly occurring in a series of individual patients, he discovered the principle that from a multitude of singular examples a general truth

may be raised. The Hippocratic corpus, springing from seed planted in still earlier days, grew stronger as it was tended by the hand of the Coan physician, and in it the method of inductive logic took origin. This practice of wide observation, comparison and contrast, reasoned judgment and final decision, Hippocrates made his own. From him all literature of science derives. His claim to be first of scientific writers cannot be gainsaid. In his own work he incorporated all knowledge then current, being recorder no less than researcher. Aristotle attributes to Socrates the elaboration of two logical functions, general definition and the inductive method; but the claims of Hippocrates are primary and irrefragable. It was perhaps in dealing with surgical matters that Hippocrates was led to announce clearly and categorically the first principles of inductive research and practice, namely, phenomena first, then recognition of phenomena as something separate from the material by which they were exhibited, then endless rearrangement within the mind of the observer, then judgment, then general propositions, then practical knowledge and craft. The quarrel as to whether medicine is science or art has not yet quite subsided

nor will it be silenced until men recognise that medicine has contact with both, with science in its enquiries, with art in its practice. Hippocrates, like all ancient Greek authors, speaks of medicine not as an art but as "the Art"; and he writes "Where the love of man is there is also love of the Art."

It is remarkable that the method of observation should have taken its origin in a direction where its exercise is most difficult. In other sciences phenomena presented for observation are "pure"; in medicine they are rarely unaffected by passage through the patient's mind which seeks to interpret yet unwittingly interposes a veil of obscurity. The observer is then confronted with phenomena not as they exist, but impure, in varying degree adulterated by the mind or affected by the will or the temperament of the sufferer.

For us in medicine, then, Hippocrates stands for the ideal physician, a man of purest integrity, humane in thought and in every action, the unwearied collector and collator of all truths accessible to the most acute observation; the first to utter great generalisations in reference to any science. For centuries his followers added

nothing to our knowledge of the science or the art of medicine. They were concerned only with the verbal message he had left in the Hippocratic collection, not with the ardent spirit that possessed him in the long years devoted to his enquiries. So has it often been in medicine. The great teacher leaves behind him the written word, or the memory of the spoken word; these become a gospel, uncritically preached by all acolytes who have humbly served the high priest. Those who have learned from a great master must surely not be content to imitate his methods, but rather must strive to capture his authentic spirit, and in that spirit to seek for new roads, and so to discover still firmer truths. Few virtues are nobler than loyalty to a great tradition. But such tradition is kept alive not by routine observance of ancient ceremony, nor by mute obedience to outworn creed, but by active faith for ever seeking new truths and exploring new paths, in conformity with the old spirit, and with unfaltering devotion to that great ideal which tradition enshrines.

Science for its advance also requires that phenomena when accurately and separately observed shall be submitted to test, that is, to experiment.

In medicine we look to Galen for leadership in this essential enterprise. Between Hippocrates and Galen the five centuries gave to medicine few new truths. The school of anatomists in Alexandria alone added observations whose effects upon the craft of surgery and the use of new methods were not inconsiderable.

It was during the reign of Marcus Aurelius that Galen came to Rome. Trained in the School of Anatomy in Alexandria, he first brought into medicine the method of experiment; though himself the wildest and least hampered of speculators. With him, and he was not the last to be so embarrassed, speculations governed and often vitiated experiment. In reference to his researches in physiology we recall that he was first to divide the spinal cord and observe the resulting palsy; to divide laryngeal nerves and produce loss of voice; to sever muscle and note the degree of paralysis that ensued; to demonstrate the flow of urine from kidneys to bladder by experiments aptly devised and accurately controlled. Galen was beyond doubt the first of experimental physiologists.

Science in its relation especially to medicine started well equipped. The two essential weapons

for intellectual advance had been wrought and used by capable and exemplary truant hands. But greedy though men remained for facts, especially during the period of Greek intellectual supremacy with its insatiable curiosity, the intellectual heritage was bequeathed to less competent and less avaricious minds, to minds indeed in which rationalism grew to be the dominant and characteristic attribute; to minds not only content with their transmitted possession, but reluctant to accept or even to recognise the existence of facts not already recorded. For such minds convinced that all truths had already been vouchsafed, and all existing phenomena adequately observed in relation to man, (both in the outer universe and man's spiritual nature), there could be no intellectual exercise other than discussion and the making of new patterns from this limited material. The paramount virtue of wonder had withered to extinction. If all knowledge was complete why should men be lost in wonder or feel curious? For the first time, unhappily not for the last! human authority was enthroned, fresh observation made perilous, and only new discussion of ancient material permitted. The teaching of the old

masters remained supreme and unchallengeable.

After the fall of Greece knowledge was kept alive and transmitted by Avicenna and others to the East, where it was treasured until, through the agency of Moors and Arabs, it returned unchanged, at a time when learning and culture in Europe had almost vanished. The Arabian mind was essentially concerned with compiling and remembering knowledge from all sources (a task for which it was well adapted) rather than with initiating inquiry. Great and useful work in this direction was carried out during the brightest days of the Saracen Empire. The modern world owes much to this careful preservation of knowledge and to the multiplication of copies of standard works on medicine, before the era of printing; even though the science and art of medicine did not at that time through such efforts advance one step. In Avicenna we find a mind keen as that of his great predecessors, viewing the human body and its ailments in his own way, although everywhere in his teaching points of resemblance to the works of Galen and Hippocrates are evident. He was not experimenter so much as philosopher, and his power

over so many centuries is probably to be attributed to masterly grasp, not of medicine and surgery only, but of all contemporary science. In the art of surgery, so far as we can judge by records in the Canon, he can hardly have attained the skill of the great founder. We do not find in him all those evidences of mastership in technique which shine so strongly through the writings of Hippocrates. As in the East to-day, the knowledge which he possessed and, to judge by the records of his successes, utilised with great practical effect, was of a different order, logical indeed, but before logical intuitive. His skill in dealing with fundamental mathematics is even now hardly surpassed, and he is almost the sole instance of a great mind applying mathematical concepts to medicine and to surgery.

Of contemporary and later writers, it is not unfair to say that they all, or almost all, were mere recorders, encyclopaedic it may be, but devoid of any spark of new thought or of wise generalisation. They preserved with reverence old tradition and ancient knowledge; they discussed every old device, and, at interminable length, the meaning of every old scripture; "They lost themselves in the fume of subtile,

sublime, or delectable speculations"; they tortured new meanings out of old phrases, they were "diligent in dressing old words new"; and their ingenuity or infinite prolixity in so doing became the standard of their scholarship. Yet men throughout this period still remained fettered and tongue-tied by authority. No truants escaped from Hippocrates and Galen. Authority has never been more pernicious. Most cruel of all tyrannies surely are those exercised over the minds of men, denying them both freedom and expression. Tyranny is no force to set in motion the ideas of science; and tyrannous indeed was the control which Hippocrates and Galen exercised for so many centuries. In all that sterile period no new thought is found, no new method, no new experiment. To deny the authority of Hippocrates and Galen or to dissent from their teaching was not merely heterodox, it was heresy, punishable by death itself. So late as the thirteenth century it called for a rare and reckless courage when Henry of Mandeville exclaimed: "God did not surely exhaust all his wisdom in the creation of Galen."

But in the world great changes were about to take place. Conquests by barbarians; disruption

of the Roman Empire; debasement of morals; and degradation of culture led to a period of intellectual sterility, and continued the still unchallenged reign of dogmatic authority. Then Europe awoke and new faith stirred.

Where was the dawn of this new day first seen? Towards the end of the twelfth century the Peace of Constance (1183) had given to Italy the occasion to found and richly to endow her schools. Salerno, oldest of modern schools in Europe; Bologna, more wealthy; Padua with greater teachers, all aided the awakening and the growth of medicine, and it was in medicine that other sciences found birth. Those whose drift was to chemistry, itself sprung from alchemy, or to astronomy, the truth of astrology, or again to physics, realised in schools of medicine the easiest opportunity for study. In these schools naturalists found the only possibility of regular training, and in the practice of medicine the easiest means of earning a livelihood. Medicine was in truth the parent or nurse of natural science. From Salerno onwards to the annus mirabilis 1543, science, however, was not so much progressive as reconstructive; little was new save rearrangement.

If Salerno marks the dawn, noon was reached when in this year 1543 Vesalius published his work on anatomy. COPERNICUS reluctantly allowed his theory of the earth's movement to be published in this same year, but only after his death. Between these two dates there was increasing evidence of the growth of man's curiosity, of his renewed sense of wonder, and desire to learn. But the reign of pure rationalism, though now in peril, did not realise its danger. That a pattern of truth so elaborately created within men's minds must of necessity correspond to an external pattern in the physical world did not yet seem to be challenged. In medicine, though new clinical truths were creeping in and though, before long, experimental research was to be established, the old symmetrical doctrine of humours was still accepted. With pride we recall that Copernicus of Poland was a truant physician. The one science which in the dark ages had never suffered total eclipse was astronomy; it was necessary to the Church for determining the days of festivals, and to the people for making their calendar and for timely sowing and reaping of crops. Copernicus had graduated at Cracow both in arts and in medicine, and

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became in due time Professor of Mathematics in Rome.

Vesalius and Copernicus may be regarded as the pioneers in new methods; in the revival of interest in truths established by direct personal observation, freed from tricks of rationalism and from plagiary—the besetting sin of their predecessors. The old rationalism was not so much supplanted as threatened by a new rivalry; men were no longer content to argue around and about the old accepted truths but were eager in quest of fresh truth. Minds at last were open to receive it, and free from the charge of heresy for so doing.

The medical profession may from time to time claim that the most versatile of living men is to be found in its ranks. Such a claim might have been made for that truant CONRAD GESNER (1516-65), a native of Zurich. He was accounted the most learned naturalist of the age, he was in the first rank of Greek scholars, and he was regarded as foremost among bibliographers. Dr Monro says that for width and comprehensiveness of learning he has rarely if ever been surpassed. At the age of 21 he was appointed Professor of Greek at Lausanne, and

four years later was made Professor of Physics and Natural History at the university of his native town. He was physician to the city of Zurich, and in an epidemic of plague which attacked the city he contracted the disease and died at the age of 49.

Among the foremost of the new intellectuals was WILLIAM GILBERT (1540-1603), a doctor of medicine (1569) of Cambridge, graduating from this College (St John's) of which he became senior Fellow in 1569. He was physician to Queen Elizabeth and James I. He tells us of the difficulties confronting a teacher of the new gospel. In the wonderful preface to *De Magnete* he writes:

And should it not seem fit to assent to sundry opinions and incredible statements, they may nevertheless contemplate a great array of experiments and discoveries (such as all philosophy ever flourisheth in), which have been searched out and demonstrated by me with much care, watchfulness and cost. In them rejoice, and to good purpose enjoy them, if ye be able. I know how difficult it is to give freshness to old things, brilliancy to the antiquated, light to the dark, grace to the despised, credibility to the doubtful; how much more difficult is it to obtain and establish some authority for things new and

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unheard of, and which are opposed to all the beliefs of men. Nor for that, however, do I care; since I think it is to few that the philosophics spirit hath been vouchsafed. Whoever desires to make trial of the same experiments, let him handle the substances not unskilfully and carelessly, but wisely, aptly, and in a business-like way; and let him not (when he fails of success) begin to find fault with my inventions, for nothing hath been set forth in this book which hath not been examined and many times tried and repeated by me. Many things in the reasonings and hypotheses will, perchance, at first sight seem very hard to be received, yet I doubt not but that at length they will obtain authority from the clear proofs given. Wherefore, in magnetic science, they who advance furthest, trust most in, and receive most profit from, the arguments adduced; nor in this science will anything easily become clear to any one in which all or nearly all points are not known. Almost the whole of this department of natural science is new and unheard of, except what a few writers have delivered concerning certain familiar properties of the magnet. Wherefore, I but little approve of the aid obtained from the ancient Greek writers, because neither the poor Greek arguments nor the Greek words avail to demonstrate or cast any light upon the truth. For our magnetic teaching is at variance with most of their principles and received opinions. Neither have I brought to this work any craft of eloquence

or adornment of words, but this only have I done that things difficult and unknown may be so handled by me and set forth in that style of writing and in those words absolutely necessary, that they may be clearly understood. I sometimes, therefore, use certain new and unusual words, not that by means of the childish veil of words, shades and darkness should be cast upon facts (as the alchemists are wont to do) but that hidden things, which have no name, and which have never before been understood, may be plainly and clearly delivered by me.

Then he asks:

Why should I submit this noble science and this new philosophy to the judgment of men who have taken oath to follow the opinion of others, to the most senseless corruption of the arts, to lettered clowns, grammatists, sophists, spouters, and the wrong-headed rabble, to be denounced, torn to tatters and heaped with contumely?

More than any he wins credit for the revival of the method of Galen; he was the father of modern experimental science, and gave the word electricity to our language.

The discovery of new truth came from Italy first, but soon from all lands, not in a trickle, but in spate. Born when Copernicus's book came of age ("that fool Copernicus" Luther called him), GALILEO (1564–1642), a student

of medicine at Pisa, confirmed the views of the Polish observer, and in 1609 constructed the telescope which revealed the satellites of Jupiter and the rings of Saturn. Like Paschal I. in A.D. 831 who, during service in St Peter's, dreamed of the burial place of St Cecilia, he allowed his mind to wander while at his devotions. His observations on the isochronism of the swinging chandelier in the cathedral of Pisa, as measured by his own pulse, led to new triumphs, but placed his life in danger. He verified the Copernican doctrine of movement of the earth, yet was threatened by the Holy Office if he did not deny it and recant. Sixteen years later he was with every circumstance of obloquy made to deny the truth of his work ("I am here to obey"). He was compelled to say that he "did not hold as true the opinion which had been condemned, of the motion of the earth".

The intellectual tyranny exercised by the authority of the ancients, and in mediaeval days by the Church, is incredible to us until we desert our own times and strive to look upon ourselves, our own beliefs, our own enslavement by ancient creeds and consecrated rites. No less a man than

Harvey, in his act of rebellion, confessed to his reckless courage. He said of himself that he "felt in some sort criminal to call in question doctrines that had descended through a long succession of ages and carried the authority of the Ancients; but he appealed unto Nature that bowed to no antiquity, and was a still higher authority than the Ancients."

Now let me briefly recite other names of members of our profession who have been truants and wandered to science. GALVANI (1737-98), an Italian physician and Professor of Anatomy in the school of Bologna, where Mondinus himself had lectured (1315-25), has left a name immortal in the literature of physics, though he hardly perhaps deserved such honour. Chemists, too, in large numbers have been doctors of medicine. ROBERT BOYLE (1627-91), linguist, pupil of Galileo, and earnest advocate of experimental methods, in 1662 formulated "Boyle's Law" (stating that the pressures and expansions of gases are in reciprocal proportions). The most versatile of men, he had at the age of 21 written a treatise on ethics, and several moral and religious essays. His devotion to the scriptures led him to learn Hebrew, Greek,

Chaldee and Syriac, that he might read them in the originals. He was created D.M. in 1665. So eminent did he become that on the Restoration he was begged to take orders, but refused as he lacked the "inner call", a decision which cost him the post of Provost of Eton offered to him in 1665. The Royal Society owes as much to him as any, for he took a leading part in its formation, was a member of its first council, and by example, by descriptions and displays, gave an authority to experimental methods never before accorded. He led the revolt against the scientific dogmatism then in the ascendant, and urged the view that knowledge, to be worth our while to seek, must be knowledge that can be used. Addison wrote that he was "an honour to his country, and a more diligent as well as successful inquirer into the works of nature than any other one nation has ever produced". Boerhaave said that from his works might be deduced the whole system of natural knowledge.

Among the most distinguished names in the roll of physicians is that of JOHNLOCKE (1632– 1704). At Westminster School he had among his fellows Dryden and South. After Christ Church he took his degree in 1656. His bent

was to philosophy and, like Hobbes, and indeed many of the younger thinkers of his own day, he turned aside from Aristotelian philosophy then paramount at Oxford. He formed a lifelong friendship with Boyle and welcomed the Restoration. Sydenham was his friend and supporter. His early leaning was to the Church; but he veered away to chemistry, attending the lectures of Peter Stahl brought to Oxford by Boyle in 1659, and from chemistry turned to medicine. At the age of 36 he was made a Fellow of the Royal Society and in 1675 he took his M.B. degree at Oxford. Gosse calls him "the amateur incarnate", though he supplied a valuable instance of the growing harmony between literature and medicine. He formed a close friendship with Ashley, afterwards Earl of Shaftesbury, upon whom he performed an operation for "internal abscess", keeping the wound open with a silver tube. "His philosophical tendencies appear in his denunciation of the futility of scholastic discussion in Medicine, and in his advocacy of the scientific appeal of experience." When Shaftesbury became Lord Chancellor, Locke was appointed Secretary of Presentations with a salary of £,500; later he became, under

Ashley, Secretary of the Council of Trade. Still later he travelled to Montpellier, where he spent two years at the university, and to Paris. Because of his association with Shaftesbury, he was suspected of being party to several plots, including that of the Rye House. Suspicion drove him abroad to Amsterdam and Rotterdam where he became known to William and Mary. When he returned to England at the time of the Revolution, he settled in Essex and took to authorship. His books advanced him to the position of first philosopher of his time, and supplied the Whigs with their political philosophy for the next century. In 1695 he published Reasonableness of Christianity, the textbook of the popular theology of the times. His work On Education was excellent. Like others before him and since, he found that gospels of which he did not approve were based upon his works. His later years were devoted to philosophy with little or no relation to medicine. He lived into the reign of Queen Anne.

Truant from the medicine of his time was RICHARD LOWER (1631-91), the full value of whose vagrant researches has indeed only been fully realised in our day. Educated at West-

minster School and Christ Church, Oxford, he remained in residence and studied chemistry under Peter Stahl. He worked also in close association with Dr Willis ("circle of Willis") in researches upon the anatomy of the nervous system and has left his name attached to the "tubercle of Lower". In 1666 he moved to London and obtained a large and distinguished practice; he was, Wood tells us, "esteemed the most noted physician in Westminster and London, and no man's name was more cried up at Court than his". Later, however, his practice fell away, probably because of his political activities. It is, however, on his physiological researches that his enduring fame is based. At Oxford he was of the group that included Willis, Boyle, Wren and others, whose experiments were directed not only to physiology but to physics. "His most remarkable experiment", says the Dictionary of National Biography, "was the direct transfusion of blood from one animal into the veins of another, which had probably never been actually performed before, though already proposed in Lower's own time and earlier, and was suggested by Christopher Wren's experiment of injecting drugs and poisons into

the veins. Lower's classical experiment of passing blood direct from the artery of one dog into the vein of another was first performed at Oxford, February 1665, in the presence of Boyle and others, and repeated in London before the Royal Society." The intention was to use this operation as a means of treating disease in man, but difficulty was experienced in finding a suitable and willing human subject. Lower was therefore anticipated in the application of his suggestion to the human subject by Denys in Paris on June 16th, 1667. On November 23rd in the same year an "eccentric scholar" was transfused by Lower before the Royal Society and expressed himself as greatly benefited by the operation. Theological controversy arose as to the legitimacy of the operation, and scientific progress was once again hampered by ecclesiastical interference.

JOHN MAYOW (1640-79) was both physiologist and chemist. At the age of 20 he was elected a Fellow of All Souls, Oxford. He practised at Bath in summer. His first and greatest work On Respiration, translated into many languages, was not only a storehouse of former observations, but contained many original ob-

servations of value. It has been said that the mechanism of respiration, the movement of ribs and diaphragm, and the anatomical points concerning the double articulation of the ribs with the spine, are there described almost as perfectly as they could be to-day. Not until after Priestley's discovery of oxygen was attention paid to the almost forgotten works of Mayow. It was then realised that he had announced the steps that must first be taken before advance either in chemistry or in physiology could be made. As investigator and critic, both in theory and in experiment, he stood almost supreme until the advent of Lavoisier.

BERZELIUS (1779–1848), the greatest chemist of his day, was Professor of Medicine at Stockholm University.

WILLIAM HYDE WOLLASTON (1766–1828) was chemist, physiologist and physician. He practised first in Huntingdon, then at Bury St Edmunds, and finally in London. Retiring from practice at the age of 34, he set up a laboratory in the rear of his house in Fitzroy Square, and there began researches on optics and chemistry which resulted in the award of the Copley Medal of the Royal Society in 1802. His invention of

the reflecting goniometer first made possible the exact measurement of crystals. He may, therefore, be regarded as a pioneer in the construction of this most important instrument of the formal crystallographer. His unusual combination of certainty and caution led his contemporaries to call him "The Pope". He may be regarded as the most expert chemist and mineralogist of his age. Of him Mary Somerville in her autobiography writes:

At this time we formed an acquaintance with Dr Wollaston, which soon became a lasting friendship. He was gentlemanly, a cheerful companion, and a philosopher; he was also of agreeable appearance, having a remarkably fine intellectual head. He was essentially a chemist, and discovered palladium; but there were few branches of science with which he was not more or less acquainted. He made experiments to discover imponderable matter; I believe with regard to the ethereal medium. His characteristic was extreme accuracy, which particularly fitted him for giving that precision to the science of crystallography which it had not hitherto attained. By the invention of the goniometer which bears his name, he was enabled to measure the angle formed by the faces of a crystal by means of the reflected images of bright objects seen in them. We bought a goniometer, and Dr Wollaston, who often dined

with us, taught Somerville and me how to use it, by measuring the angles of many of our crystals during the evening. I learnt a great deal on a variety of subjects besides crystallography from Dr Wollaston, who, at his death, left me a collection of models of the forms of all the natural crystals then known.

One bright morning Dr Wollaston came to pay us a visit in Hanover Sq., saying, "I have discovered seven dark lines crossing the solar spectrum, which I wish to show to you", then, closing the windowshutters so as to leave only a narrow line of light, he put a small glass prism into my hand, telling me how to hold it. I saw them distinctly. I was among the first, if not the very first, to whom he showed these lines, which were the origin of the most wonderful series of cosmical discoveries, and have proved that many of the substances of our globe are also constituents of the sun, the stars, and even of the nebulae. Dr Wollaston gave me the little prism, which is doubly valuable, being of glass manufactured at Munich by Fraunhofer, whose table of dark lines has now become the standard of comparison in that marvellous science, the work of many illustrious men, brought to perfection by Bunsen and Kirchhoff.

WILLIAM PROUT (1785–1850) also was both chemist and physician. He was indeed among the founders of physiological chemistry, and will

be remembered always for his discovery of hydrochloric acid in the gastric juice. In 1831 he delivered the Goulstonian lectures on "The Application of Chemistry to Physiology, Pathology and Practice". "Prout's hypothesis" that the atomic weights of all elements are exact multiples of either the atomic weight of hydrogen or half that of hydrogen—has been a fertile subject for discussion among chemists.

THOMAS YOUNG (1773-1829), whose name occupies the most distinguished place in the history of physical optics, was a man whose attainments in youth were already brilliant. Born of Quaker parents, at the age of two he could read with fluency; at six years of age he began the study of Latin. When 13 years of age he had studied Latin, French, Italian, Greek, Hebrew, Chaldee, Syriac and Persian, and was already well grounded in mathematics and natural philosophy. At the age of 14 he became classical tutor. At the age of 19 he took up the study of medicine at Westminster Hospital and the next year at St Bartholomew's. When 20 years of age he read a paper before the Royal Society dealing with ocular accommodation. He then proceeded to Edinburgh, studying there

not only medicine, but German, Spanish and Italian. He then visited Germany and added horsemanship, music and art to his studies. At Cambridge, to which he went in 1797 and where he took the degree of M.D. in 1808, he was known as "Phenomenon Young", and associated on terms of equality with Fellows of the College. In 1799 he practised as a physician in Welbeck Street, where a memorial tablet shows the house in which he lived. At the age of 28 he was appointed Professor of Natural Philosophy at the Royal Institution. In 1811 he became Physician to St George's Hospital, and in 1818 was appointed Superintendent of the Nautical Almanack. In 1814 he retired from practice.

He has been described as the founder of physiological optics, and he revived and established Huyghen's undulatory theory of light. He was the first to prove conclusively that the accommodation of the eye for vision at different distances is due to changes in the curvature of the lens. He first explained colour sensation as due to the presence in the retina of structures which responded to the three colours, red, green, violet. Brougham in the *Edinburgh* Review violently assailed him with regard to his discoveries

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and said they were destitute of every species of merit! In his essay on the cohesion of fluids, he describes the theory of capillary action, subsequently demonstrated by Laplace, whose name it bears. He was the first to use the term "energy" for the product of the mass of a body into the square of its velocity. He contributed much new knowledge in his work on The Theory of the Tides, but perhaps his greatest work was in connection with the interpretation of the hieroglyphs found on Egyptian remains. When in 1799 the Rosetta stone was discovered containing an inscription in hieroglyphic, enchoreal and Greek characters, it was realised that the Greek, already capable of translation, might afford a clue to the interpretation of the Egyptian inscription; this was translated by Weston in 1802. In 1814 Young communicated a complete translation of the demotic (enchoreal) text. In 1818 he wrote in the Encyclopaedia Britannica his celebrated article "Egypt", in which he pointed out for the first time the phonetic character of hieroglyphs within the cartouches. In this article he gave a list of several alphabetic Egyptian characters to which in most cases he had assigned correct values. On the Rosetta stone he de-

ciphered the name Ptolemy, and on another monument that of Berenice. When Champollion translated the name "Cleopatra", also contained within a cartouche, the significance of a further number of hieroglyphs was discovered. After this progress was rapid. Sir Benjamin Ward Richardson speaks of Young and says he was "the next man of Science even to Newton himself". The British Museum pamphlet says "In 1822 the list of alphabetic Egyptian characters that had been drawn up by Young was corrected and greatly enlarged by J. F. Champollion". Mrs Somerville in her autobiography writes:

When the Royal Institution was first established, Dr Young lectured on natural philosophy. He proved the undulatory theory of light by direct experiment, but as it depended upon the hypothesis of an ethereal medium, it was not received in England, the more so as it was contrary to Newton's theory. The French savants afterwards did Young ample justice. The existence of the ethereal medium is now all but proved, since part of the corona surrounding the moon during a total solar eclipse is polarized—a phenomenon depending upon matter. Young's Lectures, which had been published, were a mine of riches to me. He was of a Quaker family; but although he left the Society of Friends at an early age, he retained their formal precision of

manner to the last. He was of a kindly disposition, and his wife and her sisters, with whom I was intimate, were much attached to him. Dr Young was an elegant and critical scholar at a very early age; he was an astronomer, mathematician, and there were few branches of science in which he was not versed. When young, his Quaker habits did not prevent him from taking lessons in music and dancing. I have heard him accompany his sisterin-law with the flute, while she played the piano. When not more than sixteen years of age he was so remarkable for steadiness and acquirements that he was engaged more as a companion than tutor to the young Hudson Gurney, who was nearly of his own age. One spring morning Young came to breakfast in a bright green coat, and said in explanation of his somewhat eccentric costume for one who had been a Quaker, that it was suitable to the season. One day, on returning from their ride Gurney leaped his horse over the stableyard gate. Young, trying to do the same, was thrown; he got up, mounted, and made a second attempt with no better success; the third time he kept his seat, then quietly dismounting, he said, "What one man can do, another may".

Sir Benjamin Brodie had no high opinion of Young's professional capacity, saying that "he was either not fitted for a physician, or too engrossed in other pursuits". His colleagues

at the Royal Institute said of him: "He was a most amiable and good-tempered man...of universal erudition, and almost universal accomplishments. As a mathematician, a scholar, a hieroglyphist, he was eminent, and he knew so much that it was difficult to say what he did not know." Helmholtz, the inventor of the ophthalmoscope and himself a truant (1821-94), who almost rivalled him in versatility, said of him:

He was one of the most clear-sighted men who ever lived, but he had the misfortune to be too greatly superior in sagacity to his contemporaries. They gazed at him with astonishment, but could not always follow the bold flights of his intellect, and thus a multitude of his most important ideas lay buried and forgotten in the great tomes of the Royal Society of London, till a later generation, in tardy advance, re-made his discoveries and convinced itself of the accuracy and force of his inferences.

In geology and mineralogy one of the most interesting and important pioneers was NICHOLAS STEENSEN (1638-86), a Dane. At the age of 31 he published works on rocks and crystals. Humboldt writes that he was "the first who distinguished between rocks anterior to the existence of plants and animals upon the globe containing therefore no organic remains; and

rocks superimposed on these and full of such remains". His life was largely spent in Florence, where known as Steno, he was physician to two grand dukes. He discovered "Stenson's duct" of the parotid. Sir Archibald Garrod tells us that

Von Zittel wrote in his *History of Geology* that he was the first who sought to solve geological problems by inductive reasoning. He threw much light upon the formation and structure of crystals, and, as Leonardo da Vinci had done a century and a half earlier, he maintained that fossils are the remains of actual animals and plants of former epochs. He ended his life as a Catholic bishop, and his ascetic habits undermined his health. This brilliant Dane is entitled to rank among the great ones of science as anatomist, geologist, mineralogist, and physician, but his researches, so far in advance of his time, only received their due recognition after much of his work had been done over again by later investigators.

The University of Cambridge holds in honour the name of JOHN WOODWARD (1665–1728), who created the first geological museum and bequeathed it to Cambridge, where it forms the nucleus of the Woodwardian Museum of to-day. He was distinguished also as botanist. His first

medical degree was conferred by the Archbishop of Canterbury, and later in the year he received the M.D. of Cambridge (1695). On one occasion Mead and Woodward, then in open enmity, met accidentally under the Gate of Gresham College and at once drew their swords. Woodward's foot slipped and he fell. "Take your life", exclaimed Mead. "Anything but your physic", replied Woodward. Dr Woodward's merits as a geologist were of a very high order, and his Essay toward a Natural History of the Earth, published in 1695, gave him a great reputation. Later he was expelled from the Royal Society for grossly insulting remarks made to Sir Hans Sloane while reading a paper. The occasion was one when Sir Isaac Newton was in the chair. Woodward was buried in Westminster Abbey.

The first geological maps were created by MARTIN LISTER (1638–1712). JAMES HUTTON (1726–1797), a protagonist in the long controversy between the Vulcanists and Neptunists, between those who maintained the view that all strata above the primitive rocks were deposited by volcanic action and those who believed them to be deposited from the sea, was

a doctor of medicine at Leyden, graduating in 1749. It was he who during a visit to Glen Tilt in the Grampians in 1783 found six large veins of red granite penetrating the superincumbent slate, and who thereupon showed so great a delight, such marks of joy and exultation at his discovery, that his guides were persuaded that he had "laid bare a vein of silver or of gold".

In mediaeval and even in modern times the search for new drugs among plants and flowers accounts for the attachment of physicians to the study of botany. The belief that for every known disease a remedy lay near at hand in herbs that grew where disease flourished was universal, and a knowledge of infusions, decoctions or other preparations from flowers, plants or roots, was incumbent upon every local practitioner. First among those who preached this faith was NEHEMIAH GREW (1641-1712), who was led to the study of such matters by belief that both plants and animals "came at first out of the same hand and were, therefore, contrivances of the same wisdom", and he inferred the probable analogy of their structure. Almost contemporary with him was MALPIGHI (1628-94), with whose name we are familiar by reason of its

perpetuation in the tubules of the kidney. To him our debt is already heavy. By dissection of bodies of animals he demonstrated the capillaries, circulation through which had been predicted by Harvey. He was the founder of microscopic anatomy. At one time Professor of Medicine both at Pisa and Messina, he spent the later years of his life in Rome as physician to Innocent XII.

In the early years of the eighteenth century came one who may be regarded as the father of modern scientific botany, LINNAEUS (1707-78). He held the degree of Doctor of Medicine at Upsala University. For himself he claimed that he was not so much "discoverer as reformer"; for his task involving heaviest labour was the rearrangement of descriptive botany and the choice of the best order of appropriate and relevant terms. His influence in the world of science was paramount; indeed it was said that "no man of science ever exercised a greater sway than Linnaeus or had more enthusiastic admirers". He overstepped the bounds of botany and was forerunner and inspirer of Rome de Lisle in the new science of crystallography.

Among botanists mention must finally be

made of SIR JOSEPH HOOKER (1817-1911). He qualified as M.D. (Glasgow) in 1839, and went as surgeon on the Ross Expedition to the Antarctic and, like Darwin and Huxley at later dates, began his scientific career on board one of H.M. ships. In the Antarctic he studied flora to a degree which required no less than six volumes for its expression. He is memorable not only for the immensity and variety of work throughout the many years of a full life, but also as the man to whom Darwin first propounded his theory of natural selection. On January 14th, 1844, Darwin wrote to him: "I think I have found out the simple way by which species become exquisitely adapted to various ends", and in 1862 he added: "For years I have looked to you as the man whose opinion I have valued more on any scientific subject than anyone else in the world." For 20 years Hooker was director at Kew Gardens. THOMAS HUXLEY (1825-95), his friend, took the degree of M.B. (London) in 1845. Of the theories of which Darwin was creator, Huxley was the fervent and eloquent expositor.

It is part of the history of controversy that is recalled when we remember the discussion on

Darwin's hypothesis which came before the meeting of the British Association at Oxford in 1860. Here Huxley first made himself known as a dangerous adversary in debate, a personal force in the world of science that could not be neglected. It was known that Wilberforce, Bishop of Oxford, who had gained a first class in mathematics, intended to "smash Darwin". Huxley had no intention of listening to the discussion, believing that the bishop would make only an appeal to prejudice, that emotional reaction of ignorance to truth. Robert Chambers, however, begged Huxley "not to desert them". On Thursday, June 28th, Dr Daubeny of Oxford made a communication which referred to Darwin's hypothesis. Huxley, called upon to speak, tried to avoid a discussion on the ground that the audience was unsuitable. On June 30th, however, a fiercer discussion arose, regarded by all as an open clash between the Church and Science. Clergy present in a body in the centre of the room called upon Bishop Wilberforce to speak in a discussion opened by Dr Draper, of New York, on "Intellectual development of Europe considered with reference to the view of Mr Darwin". The bishop spoke for "full

half-an-hour with inimitable spirit, emptiness and unfairness. In a light, scoffing tone, florid and fluent, he assured us there was nothing in the idea of evolution; rock pigeons were what rock pigeons had always been. Then, turning to his antagonist with a smiling insolence, he begged to know, was it through his grandfather or his grandmother that he claimed his descent from a monkey?" (Macmillan's Magazine, October, 1898.)

This was the fatal mistake. Huxley, seated next to Sir Benjamin Brodie, a former President of the Royal College of Surgeons of England, turned to him, and in a voice of expectant triumph whispered, "The Lord hath delivered him into mine hands". On this Huxley slowly and deliberately arose. The scene is thus described by one present: "A slight, tall figure, stern and pale, very quiet and very grave, he stood before us and spoke those tremendous words-words which no one seems sure of now, nor, I think, could remember just after they were spoken, for their meaning took away our breath, though it left us in no doubt as to what it was. He was not ashamed to have a monkey for his ancestor; but he would be ashamed to

be connected with a man who used great gifts to obscure the truth. No one doubted his meaning, and the effect was tremendous. One lady fainted and had to be carried out; I, for one, jumped out of my seat." (*Macmillan's Magazine*, 1898.) The importance of this speech lay not in any measure of temporary victory, but in the fact that the new theories of Darwin thereafter received a hearing made all the more acceptable by reason of the overwhelming nature of the defence.

Let us consider a few who have strayed to politics.

The name of SIR STARR JAMESON (1853– 1917) will be for ever associated with the Transvaal "Raid" in 1895. He took the degree of M.D. (London) in 1877; and it is said that though he "never read much" he was "always in the wards". After a visit to U.S.A. he practised in Kimberley, but was enticed therefrom by Cecil Rhodes. In 1900 he became Member of Parliament for Kimberley in the Cape Legislative Assembly and in 1904 Prime Minister.

One of the greatest truants who ever strayed from the fold of medicine to become our only Lord Chancellor was ROBERT BANNATYNE,

VISCOUNT FINLAY (1842-1929). Born at Trinity, near Edinburgh, the eldest of a family of eleven children, he was the son of a medical man, and was destined at once for the profession of his father. He was educated at Edinburgh Academy, where he won almost every prize and where he gained the deserved reputation of an exact and critical classical scholar. His scholarly instinct and the severe mental discipline of his youth served him well at the bar. His faith in a classical education found expression when as President of the Classical Association he advocated the teaching of Latin conversationally as a living language. He qualified as M.B. at the Edinburgh University. He was active as speaker at the University Debating Society. After qualification he visited Europe and became an accomplished linguist, speaking German, French, Spanish, Italian and modern Greek. He never practised medicine or his favourite branch surgery, for the reason, I am told, that his hands did not obey the commands of his brains to a degree that gave him satisfaction. He turned to the Bar, and was called to the Middle Temple at the age of 25. He took silk in 1882. His success was immediate and con-

siderable; he owed it to his clearness, good sense and directness of argument. Moreover, he looked the part. He was tall, "with striking features, a fine brow, and deep-set eyes". He claimed that his first duty to his clients was to take plenty of sleep. He was captain of the Royal and Ancient Golf Club at St Andrews. He became Solicitor-General in 1895, and succeeded Sir Richard Webster as Attorney in 1900. Failing to secure his re-election to Parliament, he returned to private practice at the Bar, where his business was very large. Among Indian and Colonial lawyers he enjoyed a high reputation. In December, 1916, on the formation of Mr Lloyd George's first government, he became Lord Chancellor, an appointment enthusiastically welcomed by the whole legal profession among whom he had worked for 50 years. It cannot be said that, regarded from the legal point of view, this appointment was a success. He was painstaking but prolix and apt to be stubborn and irreconcilable. Later he became a Judge of The Hague Court, and finally when almost 80 years of age, he was appointed the British Member of the permanent Court of Arbitration at the Hague, a post for which he

possessed every qualification but youth. After his death in March, 1929, Dr Archibald Fleming said of him: "a loved and loyal friend; a courtly figure of shy but indefeasible dignity; a paragon of such courtesy as never suffered an even momentary lapse."

Among successful politicians I must include WALTER BALTHASAR FOSTER, first Lord Ilkeston (1840-1913), who was the second medical man to be raised to the House of Lords, Joseph Lister having been the first. He came from the north of Ireland, and attended the same grammar school in Drogheda which long before had first guided the mind of the Duke of Wellington. Trinity College, Dublin, gave him his degree. He went to Birmingham as Medical Tutor to Queen's College; he was then made Professor of Anatomy and finally was appointed to the medical staff of the Birmingham General Hospital. He quickly distinguished himself in professional circles, acquired a wide practice, and contributed much to the medical and political literature of the day in the Lancet, upon whose staff he served, and elsewhere. Inspired by Mr Joseph Chamberlain, the maker of Birmingham's political life, he took active part in civic

duties and in 1883 was elected a member of the City Council, where his work for the public health was of great value. He was accomplished as a man of affairs, and an excellent speaker. In 1885 he entered Parliament as member for Chester, and a year later received the honour of knighthood. At the next election he stood for the Ilkeston Division of Derbyshire. He was gradually recognised as a remarkable personality, quick in recognition of faces and in memory of names, and at once on friendly terms with his constituents. He became Parliamentary Secretary to the Local Government Board; his energy and his tireless capacity found full scope when an outbreak of cholera was threatened. He was awarded the Gold Medal by the British Medical Association for "distinguished merit" in acknowledgment of his services in political life to which he now exclusively devoted himself. He was regarded as a most accomplished administrator, of vision and great energy. In 1910 he was raised to the peerage, took the title Ilkeston, and was made an honorary freeman of that town. His career owed much to the example and encouragement of that creator of modern

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political Birmingham, Mr Joseph Chamberlain.

A medical truant to politics who considerably enlivened procedure in the House of Commons Was CHARLES K. D. TANNER (1850-1901). Son of a physician in Cork, he was educated at Winchester and Queen's College, Cork, whence he graduated in 1872, taking his diplomas in medicine in 1875 and the M.D. of the Royal University of Ireland in 1876. He visited the schools of medicine in Paris, Vienna, Berlin, and Leipzig, and on his return home quickly gained hospital and teaching appointments, the due rewards of a brilliant career. But politics claimed him for its own. In 1885 he was returned for Mid-Cork, and threw himself with amazing fervour into the Nationalist movement. In the House of Commons his combative instincts were rarely allowed to rest. Brilliant, witty, yet sometimes unanswerable assaults on the government greatly amused the House; these combined with his joy in practical joking at the expense of his opponents prevented him from receiving the serious attention his merits fully deserved. In private greatly loved, in political strife both feared and enjoyed for his audacity, truculence

and bitter but witty irony, his death was mourned alike by friend and foe.

In my own day two medical men have attained ministerial rank at home, Christopher Addison and Walter Elliott, and the present Prime Minister of Southern Rhodesia is a Fellow of the Royal College of Surgeons.

In France, medicine has rendered great service to the State. J. P. MARAT (1743-93) lived for a time in Soho (1766-77), returning to his native country as physician to the Guard, thereto appointed by Comte D'Artois, afterwards Charles X. While in England he published two pamphlets: A singular disease of the Eye, and On the Gleet. Both in England and in France he achieved some fame as practitioner. In 1788 his medical life was over, and his active political life began. In the notoriety of that life his scientific and philosophical knowledge were to be forgotten, the high position his merits had gained to be denied him, and himself to be scoffed at and derided as an ignorant charlatan who had acquired wealth by selling quack remedies. In his later years persecution, misery and poverty were his lot; he hid in sewers for his safety, and there, it was said, contracted a

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terrible form of skin disease. Politically he was always in opposition, "der Geist der stets verneint", and was merciless in his bitter condemnation of all who held power. On July 13th, 1793, he was stabbed in his bath by Charlotte Corday.

In medicine we are not unfamiliar with the improper attachment of names to methods or inventions. "Lister's Sounds" are not sounds, but metal bougies; they were not invented by Lister but by Syme. Foreign annexations are not unknown; "Basedow's disease" was first described by Graves; and "Mikulicz's operation" first performed by Paul. Not the least of these oddities in eponymous nomenclature is concerned with that instrument for decapitation known as the guillotine. JOSEPH IGNACE GUILLOTIN (1738-1814) was a French physician and an ardent humanitarian. He was a very distinguished student, and settled in practice in Paris. To him the Revolution came as the revelation of a new heaven, and it gained his unflagging support. With Chemier and Lavoisier he joined the "Society of 1789" which later affiliated itself to the Jacobins. At the constitutional assembly of which he became a member he proposed that "for all classes capital punishment should be by

decapitation". This was unanimously accepted. Venial judges ceased to have power to torture prisoners, for Guillotin had also secured the absolute equality of criminals, irrespective of rank, position, or the nature of their crime; and he had secured also the least painful execution for all condemned to death. Decapitation, hitherto the hereditary privilege of the few, became the right of all condemned to die. He abhorred the association of his name with the instrument of death, devised by an Army surgeon, Antoine Louis, and at first known as "la Louisette".

The most romantic life among modern truants from medicine to statecraft, has perhaps been that of CLEMENCEAU, who was born in Vendée in 1841, and died in 1929. He qualified in 1865. He visited London and the United States, returned to Paris, and shortly after the outbreak of the Franco-Prussian war of 1870, was elected Mayor of Montmartre. His political career had, however, begun many years before, and so long ago as 1862 he was imprisoned for two months for his share in a Republican demonstration. From 1871 to 1893 he sat in the Chamber of Deputies, playing the part of ardent radical, in

manner not unlike Joseph Chamberlain and Sir Charles Dilke at the same time in England. They, however, became gradually sobered by age and experience, but Clemenceau suffered no abatement of those wild and virulent methods of opposition which made him so dangerous an antagonist of Gambetta and Ferry, which gave him the nickname of "The Tiger", but which left on the public mind in his earlier years a conviction that so ruthless a destroyer could have no constructive power. In 1893 he lost his seat and for nine years devoted his time to literature, writing plays or novels, such as Les plus Forts or Le Voile du Bonheur. He was protagonist with Zola in the Dreyfus campaign, and his power as journalist was unexcelled. In 1902 he became Senator for the Var and Minister of the Interior, and from 1906 to 1909 was Prime Minister of France. It was felt then that his political career was at an end, but the Great War came, and on July 22nd, 1917, the French Senate heard from his lips a speech which convinced them that the only man capable and energetic enough to lift. France from the moral crisis of a dark year was Clemenceau. He proved the Saviour of France and "deserved well of his country".

The first President of the Chinese Republic, SUN-YAT-SEN (1866-1925), was a doctor. He early devoted himself to politics, especially while living in Hong Kong. He entered the College of Medicine in Hong Kong in the year of its inauguration, 1887, and in 1892 was its first graduate. For a time he practised in the Portuguese Colony, Macao. He lived, however, much abroad, and spent his days in stirring up plots against the Manchu dynasty. The Chinese Revolution broke out on October 10th, 1911, and on December 25th, he was elected President of the Chinese Republic, resigning in March 1912, to Yuan-Shih-Kai, who in 1915 proclaimed himself Emperor. Sun-Yat-Sen returned to China, organised a new rebellion, and led South China against Yuan-Shih-Kai. In 1917 he was appointed Generalissimo of the Canton Government. His efforts to come to friendly understanding with Russia were not without result; and he introduced Russian ideas, military and civil, into China. He died of cancer in 1925.

Among colonial administrators who have strayed from medicine, the counterpart of Sir Starr Jameson in the United States was GENERAL LEONARD WOOD (1860–1927), the greatest co-

lonial administrator America has yet produced. Son of a medical man, he took to the same profession and qualified at Harvard in 1884. He entered the Army as an assistant surgeon and soon saw service in Arizona against Apache bands. He took his share in fighting and gained the rare and coveted "Congressional Medal for Valour". After service under three presidents in Washington, he and Theodore Roosevelt were jointly authorised, when the war with Spain broke out in 1898, to raise and equip a regiment of rough riders. After the action of Las Guasimas he was promoted Brigadier-General and became Governor of Santiago after its capture. With enormous energy and with a passion for patriotic service, he civilised the whole province. He then became Governor-General of Cuba. Administratively, and especially in connection with medical problems, his success was immense. He brought order out of chaos, and his elimination of yellow fever from the island was the model for the later stupendous work of Gorgas at the Panama Canal. His work made possible the creation of the Republic of Cuba in 1912. He owed his success to unbounded energy, determination, common sense and a high

personal character; he had studied not without profit much of the history of recent British colonial administration. When his old colleague Theodore Roosevelt became President of the United States, he conferred upon Leonard Wood the most difficult post he had to bestow. This was the military governorship of the Moro province of the Philippines. Before taking this post he had visited Germany, and had made friendship with Lord Roberts. These two were convinced of the threat of Germany to the world, and they agreed that "Peace could be preserved only by the power to preserve it". Until 1905 he remained Governor of Moro, and by his labours there he turned over the government of the province to his successor when "law and order, and a strong and stable government" had been established. He became chief of the General Staff in 1910. In the States he played the same part as Lord Roberts did in England. He sought to raise enthusiasm for military preparation against the world crisis he felt to be impending. But, like Roberts, his preaching raised little response. After the outbreak of war in August 1914, he strove with endless vigour and enthusiasm to equip America for the share that

he realised she must take. But in search of active participation he was elbowed into the background and only towards the end of 1917 was he allowed to visit France. He was wounded in 1918, and returned to Washington. Democrats in power did little to help this great Republican. After the war he became Governor-General of the Philippines in 1921. Though he sought to educate the people in the principles of popular democratic government and to bring them more and more into a share of the administration, he was tenacious in his belief of the necessity of American sovereignty. He died with his work unfinished in 1927; and since his death his reputation as the greatest of American colonial administrators has become unassailable.

Among the most distinguished of those truants from medicine who have sought refuge in politics, may be mentioned SIR HILARIOSE MARCUS FERNANDO of Ceylon. After a most successful career at the Royal College, Colombo, he came to England to study medicine. At University College Hospital his career was one of uninterrupted success which culminated in his winning the Scholarship and Gold Medal at his Examination for the M.B. at the University of London.

On returning to Ceylon his brilliant academic career was recognised by his appointment to the staff of the General Hospital, Colombo. At the height of his medical career he suddenly played truant to medicine and took to a political life, following "the broken path of broken pledges". He greatly distinguished himself in works connected with agriculture in the island and with economics, and was appointed a director of the State Mortgage Bank of Ceylon. He died early in the year 1936.

Many truants from medicine have escaped to literature; but not a few of those who remained faithful have adorned the pages of English letters with prose hardly excelled in beauty or pregnancy of meaning by other writers. Among such men my old teacher, Clifford Allbutt, was perhaps supreme among physicians, as was Sir James Paget, greatest of our orators, among surgeons. But they were by no means the first.

Apollo, God of Light, Giver of Life, God of Art, the leader of the Celestial Choir on the heights of Parnassus, had the good fortune to be a parent; and it was on his favourite son, Aesculapius that he conferred the divine gift of healing. Between medicine and song there is,

therefore, a close family tie. Physicians were indeed the "Children of Apollo".

Though I may be omitting poets worthy of mention, first of whom was Empedocles (500 B.C.), let me begin the story of authors who were truant with FRANÇOIS RABELAIS (1483?-1553), born in Touraine. He became a monk to please his father, and joined the Benedictine Order from which, however, he resigned after punishment for indecorous behaviour. When 47 years of age he studied medicine at Montpellier and later practised at Lyons, taking a doctor's degree in 1537. In later life he returned to the Church and became Rector of Meudon. His most famous work, still widely and appreciatively read, was The Lives, Heroic Deeds and Sayings of Gargantua and Pantagruel, an extravagant, but despite its grave blemishes and coarseness, a delightful satire on monks, priests, popes and pedants. The obscenity and absurdity are blended with learning, wit and humour. As priest he was exemplary in many respects, devoted to the welfare of his flock, beloved by children and generous to all, especially to those in need. His house was the resort of the learned. JULIUS CAESAR SCALIGER (1484-1558), the

distinguished classical scholar, was also in the ranks of medicine. Born on Lake Garda, he became page to the Emperor Maximilian whom he served in war and peace for 17 years. It was only on leaving the Army at the age of 40 that he applied himself to the study of medicine, and not less to the acquisition of languages. His first work *A Defence of Cicero* was prompted by the *Ciceronianmus* of Erasmus, wherein the Latin author was harshly ridiculed. His invective against Erasmus stirred the whole world of learning. His erudition was considerable, but his vanity and insolence greatly lessened the high esteem in which otherwise he would have been held by all contemporary scholars.

THOMAS LODGE (1558–1625) had one of the most interesting and varied careers of mediaeval times, and may be regarded as a truant in the opposite direction—from a life of endless variety and thrilling incident to medicine. Second son of Sir Thomas Lodge, Lord Mayor of London in 1562, member of a family dating from the reign of Henry I, he graduated at Oxford in 1577, having already written verses. He early abandoned law for literature, and was soon welcomed as companion by Drayton, Lyly and

Watson. His vagaries seem to have alienated the affections of his family and his name was omitted from his father's will. Gosson described him as one who was "hunted by the heavy hand of God and became little better than a vagrant, looser than liberty, lighter than vanity itself". His early life indeed was marked by continuous unrest and perpetual unhappiness, though he was prodigal with his pen, which was often rancorous. In 1588 and again in 1591 he went to sea, travelling to South America and visiting among other places, Santos and its then famous library. On his return he published more verse referring to the sea. In later years he earned a measure of public approval and support, and is said to have won the commendation of Spenser. After 1595 he wrote only a few volumes of prose. He began the study of medicine in 1596 and took a degree at Avignon in 1600 and at Oxford two years later. In 1599 when the plague raged in London he wrote A Treatise on the Plague. In 1609 he is mentioned in a list of the chief physicians of the day. It is, however, as lyric poet that Lodge is most worthy of remembrance, and he is described by a contemporary as a writer of "those pretty old songs

and madrigals which are very much the strain of these times"; his lyrics, indeed, are still regarded as among the finest in our language, though it is admitted that he owes much to the French author, Du Portes, and something to Ronsard. Sir Humphry Rolleston says that the most interesting of his plays is *Rosalynde*: *Euphues Golden Legacie*, 1590, which provided young Shakespeare, who was then but 26, with the plot of *As You Like It*.

One for whom among poets a place may be justly claimed is THOMAS CAMPION (1567-1620) whose parents were married when he reached the age of 30. Like other youths who turned from the oath of supremacy, he studied medicine, and took a degree abroad. He displayed the "childish titulation of riming". He first obtained notoriety as playwright and musician, through the masque presented before James I at Whitehall. This masque was the first of many written and composed by him, and performed at Court. His time was so much engaged with music and literature that medicine suffered; nevertheless, he had distinguished patients, including Sir Thomas Monro, charged with complicity in the murder of Sir Thomas Overbury,

and confined in the Tower. His lyric gifts were considerable, of his medical skill we know nothing.

Supreme among all truants must surely be SIR THOMAS BROWNE, of Halifax and Norwich, whose Religio Medici continues to be the delight and inspiration of an endless host of his successors. Sir Thomas Browne (1605-82) was educated at Winchester and Oxford. He practised for a time in Oxford but soon left for the Continent, visiting Montpellier and Padua, and at the age of 28 was given the degree of M.D. at Leyden. On his return he began practice at Shibden Hall, near Halifax, which still stands. After a few years he left Yorkshire for Norwich, and then took his degree of M.D. at Oxford in 1637. He quickly gained high repute as a physician. In 1641 he married and despite his opinion that the act of coition was "the foolishest act a wise man commits in all his life, nor is there anything that will more deject his cooled imagination than to reflect upon the folly he hath committed", he became the father of 10 children. The most famous of all his books Religio Medici was published surreptitiously in 1642. It was written while he was in Yorkshire, for the occu-

pation of his leisurable hours and for his private exercise and satisfaction, at the age of 30. It suffered from the premature publication of unauthorised versions of which there is nevertheless evidence that the author was not unaware. Of it Gosse writes: "It was the earliest book in which the harmony between the physician and the man of letters was complete. It was written to discover how religion bore the test of scientific training and to combat the prevalent worldly belief that the anatomist could have no piety."

Sir Thomas, like other great men, believed in the influence of the stars upon the affairs of men, and he held this as explaining the fact that "he was not disposed for the mirth and galliardise of company". Perhaps the most learned of Sir Thomas' work was *Pseudodoxia Epidemica*. Its compilation was the work of many years, and the scholarship and research therein contained are remarkable. The reader of to-day will smile as he realises the extent to which Satan is here reproving sin, for credulity was the inherent weakness of a great mind. He believed in astrology, alchemy, witchcraft and magic, and his faith in the Ptolemaic system of astro-

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nomy was unshakable. He showed his credulity when in a trial for witchcraft he was asked by the presiding judge to give his opinion of the case, he said: "That the fits were natural, heightened by the devil's co-operating with the malice of the witches at whose instances he did the villanies"; an opinion which did much to secure conviction. He regretted that in his professional works he had no time to make "those infallible experiments and those assured determinations which the subject sometimes requireth". His reputation for wide and remote knowledge spread throughout the land, and his opinion and guidance were sought by men themselves learned in philosophy, in natural history, and in medicine. He wrote upon Urn Burial, and made it an occasion for quoting Dante. Sir Thomas Browne received a knighthood when Charles II visited Norwich, after the refusal of the mayor for whom the honour was first considered. He published many other works, some posthumously. Many of his manuscripts are in the Sloane collection of MSS. His son Edward became F.R.S., physician to the King and St Bartholomew's Hospital, and President of the Royal College of Physicians from

1704 to 1708. We had the skull of Sir Thomas Browne at the Royal College of Surgeons for a time before its final reburial at Norwich.

SIR RICHARD BLACKMORE (1650-1729) took a degree in arts at Oxford and in medicine at Padua. His philosophical poem *The Creation* was praised by Addison. His poems were written as he travelled on his rounds. He said:

In leisure hours in epic song he deals,

Writes to the rumbling of his coach's wheels.

Physician to William III and afterwards to Queen Anne, he is chiefly remembered for the distinction of those who attacked him, among them being Dryden and Sir S. Garth. Colonel Coddrington wrote:

By nature formed, by want a pedant made, Blackmore at first set up the Whipping trade. Next quack commenced: then fierce with pride he swore

That toothache, gripes, corns should be no more. In vain his drugs as well as birch he tried His boys grew blockheads, and his patients died.

Of medical men who for a time strayed into other paths, we may recall THOMAS DOVER (1660-1742), inventor of the eponymous powder. In younger days he sailed from Bristol in

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a privateer commanded by a man of parts, William Dampier, captain in the Navy, hydrographer, buccaneer, to whom he was second in command. We owe to him the discovery of the original Robinson Crusoe. The powder which bears his name is in high repute even to this day. He was known coloquially as the "quicksilver doctor", because of his faith in the use of mercury.

SIR SAMUEL GARTH, a Yorkshireman, though never wholly truant (1661–1719), was of high repute in his day, both as physician and as poet. His poem published in 1699 *Dispensary, a poem*, certainly led to the creation of these invaluable institutions for the poor. He delivered the Goulstonian lecture in 1694, and in 1697 the Harveian oration at the Royal College of Physicians. He obtained permission from the College for the body of Dryden to lie there before burial, and he delivered a Latin oration over it. He enjoyed a large practice, held office at the Court, and was, Pope said, the "best natured of men". His couplet in the *Dispensary* is of all his work the best worth remembering:

To die is landing on some distant shore Where tempests never beat nor billows roar.

Later, we claim JOHN ARBUTHNOT, F.R.S. (1667-1735), an Aberdonian, a graduate of St Andrews, physician and wit, a man whose extraordinary ability was hailed by Pope. By good fortune he was present at Epsom when Prince George of Denmark was taken suddenly ill. He became physician to Queen Anne, and, Swift says, was her "favourite physician". He attended her on her death-bed. He gave the Harveian oration in 1727. Fifteen years earlier he published Law in a Bottomless Pit, or the History of John Bull; and it is probable that therein he created our national character and name. Edmund Gosse says: "Arbuthnot sat in the circle of wits as 'our best natured-man'. On both Pope and Swift, who were invalids, neurotic and nervously irritable, he exercised a soothing influence, and his society was equally congenial to the more normal members of the immortal band-Gay, Steele, Congreve and others." He contributed to The Memoirs of Martinus Scriblerus of which Pope was editor.

MARKAKENSIDE (1721-70), poet and physician, after little success as practitioner in the provinces, went to Hampshire, and then to Bloomsbury Square, financed by an old friend,

Jeremiah Dyson, until prosperity came to him. While still in Newcastle he wrote The Pleasures of the Imagination, a poem that did not lack success; and was, indeed, claimed as his own by a charlatan, Rolt. It bears Akensides' name only on the second edition. His most famous poem, however, is Hymn to the Naiads. He became F.R.S. and M.D. (Cantab.) in 1753, and in 1755 delivered the Goulstonian Lecture at the Royal College of Physicians, and in 1756 the Croonian. He died on the bed on which Milton had died, having kept silence as poet during the days of his large practice. His name was originally spelt Akinside, but it was soon realised that its sound was unfortunate for one practising medicine, and a change was made. He was satirised in Peregrine Pickle, by Smollett.

TOBIAS GEORGE SMOLLETT—whose popularity still continues—(1721-71), studied at the University of Glasgow and was there apprenticed to a surgeon. At the age of 18, as other Scotsmen have done, he sought his fortune in England. He brought with him a tragedy *The Regicide*, the very worst effort of his pen. The failure of this wretched play became a stock grievance throughout his life; he was, indeed,

reduced to starvation until by influence he obtained the post of surgeon's mate on H.M.S. 'Cumberland', sent to attack Cartagena. In Roderick Random, licentious though it is, he has left an historic account of the miseries endured by sailors and soldiers alike in that campaign. On his return he began practice in Downing Street but "attracted more attention as a wit than as a leech". He had an important share in the revision of Smellie's Midwifery, the standard book of that time. In 1750 he took the degree of M.D. at Aberdeen, and a year later published Peregrine Pickle. Like its predecessor, it has no plot; and is merely a string of adventures loosely held together, but the wealth of amusing incident and the rapidly moving crowd of eccentric figures atone for much coarseness. Two years later he abandoned medicine for literature, and acquired fame and a fortune which he lavishly squandered. Hume likened him to a coco-nut-"rough outside, but full of human kindness within". He and Fielding are justly regarded as the greatest writers of comic prose-epic of the eighteenth century. His powers of observation and brilliancy of description have rarely been equalled in imaginative literature.

Best known and perhaps best beloved of all literary truants is OLIVER GOLDSMITH (1728-74). There is, however, some doubt as to whether Goldsmith was ever justified in describing himself as doctor. Admission to the Church, the calling of his father and brother, being refused, he was then intended for the law. He was financed by a generous uncle with the sum of £,50, lost at once in a gaming house into which he was enticed. A little money was collected for him, and at the age of 24 he became a student at Edinburgh, spending 18 months in the acquisition of some knowledge of chemistry and biology. From there he drifted to Leyden where he remained for more than a year leaving with little knowledge of medicine, with only the clothes he wore and a flute. He wandered through France, Switzerland and Italy, living on charity, casual gifts, and the frequent support given by monasteries:

Remote, unfriended, melancholy, slow Or by the lazy Scheldt or wandering Po My fortune leads to traverse realms alone And find no spot of all the world my own.

In 1756 he returned to England, penniless, friendless, with a medical degree obtained some-

where, and attested only by his own unsupported statement. He practised for a time in Bankside, Southwark, as physician to the poor. Amongst his patients was a printer's workman through whose influence with Samuel Richardson Goldsmith was appointed corrector to the press in Salisbury Court. To earn a pittance he later became usher in a school, and afterwards obtained a medical appointment with the East India Company, who subsequently revoked it. He presented himself then for examination for the post of "mate" to a hospital; but even for this humble post he was rejected. Turning to literature for a pittance he found immortality. His farce She Stoops to Conquer is incomparable. The Vicar of Wakefield will be read so long as our language lasts. His poems, which can "kindle our minds into unusual vitality", his plays, indeed all his writings, show simplicity and austerity, with an engaging beauty. He was friend, if often the butt, of Johnson, Garrick, Reynolds, Burke and others. The contrast between his written and spoken word is a puzzle to all. In conversation he was "imbecile". Garrick wrote:

Here lies Nolly Goldsmith, for shortness called Noll, Who wrote like an angel, but talked like poor Poll.

But his companionship meant much to great men. When he died Burke "burst into tears", and Reynolds laid aside his brush for many days. It was supposed that his death was hastened by indiscriminate attachment to James' powder.

EDWARD JENNER (1749–1823), discoverer of vaccination and the friend and pupil of John Hunter, strayed profitably beyond the boundaries of medicine. His interest in birds is well known, his curiosity as to details of their lives was insatiable; he was an earnest student in the matter of fossils, and he was in a very minor sense a poet. Perhaps the most interesting of his effusions was *An Address to a Robin*.

GEORGE CRABBE (1754-1832) was, of all men truant from medicine, professionally the most incompetent. As a doctor he so failed that, at one time lacking employment, he was compelled to labour in the docks. When 30 years of age he chanced to attract the attention of no less a man than Edmund Burke, who urged him to publish his poems and to leave medicine for the Church. In 1781 he was ordained and made curate of his birthplace, Aldeburgh. But members of his congregation who had known his failure as a doctor and were

aware of his work as day-labourer, had little respect for him as priest. From ignominy he was saved by the Duke of Rutland, who, at Burke's instigation, appointed him Chaplain. In his poem *Physic* he says of doctors—

Helpers of men they're called, and we confess Theirs the deep study, theirs the lucky guess.

There is much praise of the physician and much harsh criticism of the quack. He points out that the young and less experienced physician will write "rather with a view of making himself known, than to investigate and publish some new and useful truth". Byron said that he was "Nature's sternest painter, yet the best".

Among poets truant from our profession, JOHANN CHRISTOPH FRIEDRICH SCHILLER (1759–1805), takes a distinguished place. Son of a doctor, he was poet, dramatist and historian. He came to medicine after toying with theology and jurisprudence. His first tragedy *The Robbers*, written when he was 22 and a regimental surgeon in Stuttgart, contained passages so revolutionary that he incurred the displeasure of the Duke of Wurtemberg. He left Stuttgart by stealth, and for purposes of protection became "Dr Schmidt", and later "Dr Ritter". In 1789 he

was appointed extraordinary Professor of History, unpaid, at Jena, and while there produced many works, most notable perhaps, being his *Ballads*. Mankind owes him gratitude, not only for his own authentic work, but for his influence, deep and simplifying, upon Goethe with whom he wrote in collaboration. Goethe, too, was a biologist, and was discoverer of the inter-maxillary bone.

No one who has considered, even idly, the wayward distribution of great intellectual gifts can fail to be baffled in a search for reasons or for method. Genius springs up in unlikely places and from soil that seems infertile. One whose instincts and faculties were more finely poetical than those of any of his contemporaries (and these included Byron, Scott, Wordsworth and lesser men), was born in humblest and most unpromising surroundings in London. KEATS' father was head ostler in livery stables attached to the "Swan and Hoop" in Finsbury Pavement, and here the poet (1795-1821) was born. At the age of 15 he was bound apprentice to John Hammond, surgeon, at Edmonton; but already his interest was deeply engaged elsewhere. At Edmonton he translated the Aeneid, and once

a week walked over to his friend Cowden Clarke to exchange books and with him "to travel in the realms of gold". On July 25th, 1816, he passed his examination at Apothecaries' Hall, after being a dresser under Mr Lucas at Guy's. During his student days he expressed no love for medicine, though in surgery it is recorded that he was "no bungler". Coleridge and Shelley had both shown a passion of philosophical curiosity in the mechanism and mysteries of the human frame, but Keats shared no such enthusiasm; he found that the responsibilities of his profession weighed unduly upon him, and he was conscious of "a kind of uneasy wonder" at his own skill. His mind was easily enticed away from his task. To Cowden Clarke he once wrote: "The other day during the lecture there came a sunbeam into the room and with it a whole troop of creatures floating in the ray; and I was off with them to Oberon and fairyland." Of the last operation he ever performed he wrote: "My last operation was the opening of a man's temporal artery. I did it with the utmost nicety, but reflecting on what passed through my mind at the time, my dexterity seemed a miracle, and I never took up the lancet again." Sir Benjamin

Ward Richardson wrote: "If John Keats had once tasted the true spirit of Medicine he would have become one of her greatest sons-an addition perchance, to the some eight or ten of the men of all time whom Medicine claims as her own, her poets of nature." Imagination is no less an asset in medicine than in poetry. Did not Keats himself say "Imagination is like Adam's dream-he awoke to find it truth." We do know that Keats attracted the notice of the greatest surgeon of his day, Sir Astley Cooper. His poetic works suffered harshest criticism which grievously hurt; indeed, he believed that his merciless critics hastened his death. He died from phthisis in 1821. On his grave in Rome is written the most poignant epitaph: "Here lies one whose name is writ in water." In all ordinary relations of life his character was conspicuous for manly sweetness and spirit. Sir Sydney Colvin, his biographer, writes: "No man who ever lived has inspired in his friends a deeper or more devoted affection, and none save the one Master alone has put more deeply inspired thoughts into words of such limpid and exquisite perfection."

One to whom all writers are almost daily

indebted was PETER MARK ROGET (1779-1869), a physician who, after retirement from practice, compiled the Thesaurus of English Words and Phrases, so frequently and so happily consulted by authors in his day and since. Only son of John Roget of Geneva, his mother was sister to Sir Samuel Romilly. After acting as private physician to Lord Lansdowne, he became physician to the Infirmary at Manchester, but at the age of 28 he went to London where he became the first Fullerian professor of Physiology at the Royal Institution. His energy strayed into other fields than those of medicine. Having natural aptitude for mechanics he devoted much time to their practice. He invented a sliding rule so graduated as to be a measure of the powers of numbers, as Gunter's scale was a measure of their ratios. He was elected F.R.S. and acted as secretary, succeeding Sir John Herschel. He took an active part in the formation of the University of London. Retiring from practice at the age of 61, he compiled the Thesaurus, and wrote on chess problems, and also at length upon scientific problems in the Encyclopaedia Britannica and elsewhere. He died at the age of 90.

Few men truant to medicine have with so little production made so great and immortal a repute as JOHN BROWN (1810-82). Son of a biblical scholar, he began to study medicine in his eighteenth year. He was a pupil and apprentice of one who then was, by general consent, regarded as the greatest surgeon in Europe, John Syme, father-in-law of Joseph Lister. He practised in Edinburgh, and distinguished himself by professional skill and high devotion to the arduous tasks that now fell to his lot. Though John Brown wrote little on medical matters, and became immortal in literature, it might be better to range him among the wanderers than as wholly truant. His first and certainly his greatest work, Horae Subsecivae, deals with a great variety of topics relevant to medicine. But in Rab and his Friends he won the hearts of all. It deals with a surgical subject, the operation performed upon a woman for cancer; but its eloquence, its simplicity, tenderness and pathos, leave an impression that neither time nor any later experience can efface. In the later volumes of Horae Subsecivae John Brown had found his full strength. On every topic-poetry, art, human character in its infinite variations, the

beauty of his own country-side—he writes with pathos and insight rarely equalled; all is illuminated by curiously naïve and original humour. Like other men, especially perhaps Montaigne and our own beloved Charles Lamb, he transfers to his books much of his own temperament and character, so that we feel on closest and most intimate terms with the man himself. Few have been so beloved in life, so lamented in death, for he had the strength of man, the infinite tenderness of woman, the doctor's compassion. In later years melancholy overcame him, and he withdrew for long periods from active work. Before the end, however, his vitality and old cheerfulness fully returned.

The most eminent surgeon who ever travelled successfully in other fields was perhaps SIR HENRY THOMPSON, BT. (1820–1904). Student of University College Hospital, he distinguished himself by winning gold medals in Anatomy and Surgery at the London University. Among his earliest dressers was Joseph Lister who, encouraged by him, went to Edinburgh to work under James Syme. After a brief period he practised in London. Having gained the Jacksonian Prize in 1852 with an essay that made

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his name famous, he became a Fellow of the Royal College of Surgeons in 1853, and in 1860 he won the prize a second time. These two essays both dealt with diseases of the genitourinary system with which his work in future was chiefly concerned, for he speedily became acknowledged leader in this department of surgery throughout the world. He owed much to his teacher, Civiale, in Paris. He was a pioneer both in lithotrity and, later, in perfecting the abandoned operation of supra-pubic lithotomy. In 1863 he operated upon Leopold I, King of the Belgians, and in 1872 upon Napoleon III. One of the most versatile of men, he was foremost authority in his own department of surgery; an authority in dietetics, early advocate of cremation, amateur astronomer of great merit, an avid collector of oriental china, an artist whose works were hung at the Royal Academy, and a successful novelist under the nom de plume of "Pen Oliver". He was famous, too, for his "Octaves", dinners at eight o'clock for eight people with eight courses, his last dinner being his 301st. The Octaves were attended by the most famous people in art, letters, politics, science and diplomacy, and by King

Edward VII and King George V when Prince of Wales. His literary capacity both in matters surgical and in the telling of stories, especially *Charley Kingston's Aunt*, was far above the average.

CONAN DOYLE, creator of Sherlock Holmes (1859–1930), was one of the most distinguished novelists who have played truant from medicine. While a student at Edinburgh he came under the influence and within the tutelage of Joseph Bell, surgeon to the Royal Infirmary, from whom he learnt the method portrayed in his creation of the famous detective; the method of quick aperception and of instant deductive reasoning from facts which escaped the observation of those less attentive or less well trained. On all who attended his classes Bell impressed the endless significance of trifles and of small distinctions. Of Conan Doyle he said in later years: "I always regarded him as one of the best students I ever had. He was exceedingly interested in anything concerned with diagnosis, and he was never tired of looking for details." After qualification, Conan Doyle went to the Arctic as ship's surgeon, and then to West Africa. For nine years he practised at Southsea, and employed his

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leisure in writing. In 1886 he applied the methods of Joseph Bell to the detective story and published A Study in Scarlet. He spent days in the British Museum collecting material for The Refugees. The rest of his long life was devoted to writing books and telling stories which thrilled the youth of the day, and for a time almost rivalled the enthusiasm and excitement which swept through the country when immortal Pickwick was coming to birth in eagerly awaited numbers. His work was a pattern and the chief incentive to much of later detectivestory literature. He published Songs of Action in 1898. In his final years he spent much time and undaunted application in the cause of spiritualism.

Among poets who have wandered from the ranks of medicine none since Keats has gained so great renown as our late Laureate, ROBERT BRIDGES (1844–1930). After leaving Eton and Corpus Christi, Oxford, where he had some repute as an oarsman, he travelled abroad before entering as a student at St Bartholomew's Hospital. He took his M.B. in 1874, and was casualty physician at St Bartholomew's and assistant physician both to the Hospital for Sick

Children and the Great Northern Hospital. Keats, though poor, abandoned medicine for literature; Bridges, well-to-do, practised his profession seriously and with distinction. He retired from practice at the age of 37. His contributions to the literature of medicine were few and of no great importance. In 1922, however, he collaborated with Dr Cuthbert Morton, of Leeds, in an essay on the Language of Anatomy. which, in spite of its title, is of general interest in that it enunciates the principles which should govern the adoption of Greek and Latin words into English. He helped to found the "Society for Pure English". He lived to the age of 85, and on his birthday, October 23rd, 1929, six months before he died, he published the Testament of Beauty, a work more admired than studied. His spelling is to many readers sometimes repellent; he was a master of metrical composition. Except that his writings show an unusual knowledge of human nature, doubtless acquired or enlarged by his early professional work, there is little of anything enabling a reader to discover that he was a member of the medical profession. On his 80th birthday he was given the Order of Merit. It was said after his death that "The

Medical profession may well feel proud that its only Poet Laureate (unlike so many of his predecessors in that office) was a great poet and a fine scholar, and that the years he spent in Medicine were a vital contribution to Robert Bridges' training for the life of letters." This, indeed, he had recognised himself for he wrote that "he would be a better poet if he learned and practised some profession which brought him into active contact with human life, and particularly with the investigation and achievement of natural science".

Among the greatest English scientists truant to literature was SIR RONALD ROSS (1857– 1932). Born in India three days before the outbreak of the Indian Mutiny, he came to England at the age of eight. At St Bartholomew's Hospital he was an undistinguished student. At the age of 24, under persuasion and with much hesitation, he joined the Indian Medical Service. He did not in the early years devote all his interests to medicine, giving enthusiastic devotion to mathematics and to poetry. His earliest prose work, *Child of Ocean*, had adequate success, and this was also claimed for his poems, which showed both imagination and dramatic power.

On his first leave home, after seven years in India, he worked for the Diploma of Public Health, then recently established. Returning to India in 1890, with enthusiasm for poetry and mathematics undiminished, he became enchanted with the study of bacteriology. Four years later he returned to England, and was stirred to interest in malaria by A. A. Kanthack and Sir Patrick Manson. Manson, after his earliest studies, had become convinced that the intervention of an agent, such as the mosquito, might explain the spread of malaria. Laveran was then discovering a malaria parasite living in the red blood cells, and, from time to time, in favouring circumstances multiplying. Manson reasoned that this parasite to pass from man to man required a blood-sucking intermediary. The urgent need for the discovery of this agent fired the mind of Ronald Ross, by this time an expert in bacteriology and microscopy. The vast possibilities for human welfare that underlay this discovery set Ross to work with intense activity, under conditions often maddening in their discomfort, as his letters written home to his wife reveal. Many false scents were laboriously followed, until in 1898 Ross succeeded in

conveying malaria from bird to bird through the mosquito. The life-history of the parasite was then worked out and the demonstration completed. To this immortal discovery Manson and Laveran had contributed, but to Ross alone belongs the credit of setting out the whole truth. He suffered and openly expressed deep disappointment at the tepid reception of his discovery and the lack of any reward, either titular or financial, for the great work which had placed him among the immortals. He visited Dominions and Colonies to advise on malaria and its prevention, but the desired recognition was too long delayed. He was made F.R.S., F.R.C.S., C.B., and in 1902 received the Nobel Prize for Medicine. In 1911 he was made K.C.B., and after the war, K.C.M.G.

His work for literature included his editing Science and Progress to which he contributed psychological discussion and mathematical papers of some distinction. He was no trained mathematician yet his contributions were original and ingenious. As poet and writer of romance he found enthusiastic admirers. In 1928 he published a collection of new and old Poems, ranging from a romantic wildness to a polished

formality, and fine critics have found in them the fundamental thought and the music of true poetry. In 1930 he published Fables and Satires and in 1931 Lyra Modulata. His prose romances included Spirit of Storm, Child of Ocean, and the Revels of Osera, rivalling in moving splendour the best of his poetic works.

Of American truants OLIVER WENDELL HOLMES stands first (1809-94). He was early appointed Professor of Anatomy and Physiology at Harvard, and so many were his duties that he said: "I occupy not a chair but a whole settee." He did not desert medicine but made it the companion of literature. Literary work he found seductive. He speaks of the malady that comes from "the type of the printer" as the most insidious and dangerous form of lead poisoning. His greatest contribution to medicine, indeed a most remarkable one, was given in 1843, in Puerperal Fever, a Private Pestilence. It can be truthfully claimed for this little work that it is one of the greatest essays ever written in the history of medicine, for in it he pointed out for the first time that puerperal fever is contagious. He was, indeed, pioneer in the field of antiseptic midwifery in which Semmelweiss

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afterwards worked so gloriously. The world will never forget him for his *Breakfast Table* series. The wisest thoughts of the ordinary man are carried a stage further than the ordinary man can let them go; and they are expressed in simple yet terse and striking phrases that at times reach the height of eloquence. His grim yet smiling humour lingers in the mind for all time.

SILAS WEIR MITCHELL (1829-1914), also American, was a man of multiple facets. He was physician, giving his time largely to neurology; he was poet, devoting himself to public affairs; and in early days, he was expert on questions of hospital management. A man may be great because of his individual achievements, he may be even greater through creative influence upon other lives. A colleague once asserted that Landor's words "I warmed both hands before the fire of life" were truer of Weir Mitchell than of any man. Of Scots descent, his great grandfather was a friend and frequent companion of Robert Burns. His father said of him in early days that he was wanting in nearly all the qualities that make for success in medicine. Qualifying in Philadelphia in 1850,

he turned to Paris for one year's further study. Under Claude Bernard and Robin he found delight in physiology. When his father urged him to become a surgeon he said: "I fainted so often at operations that I began to despair."<sup>1</sup> His earliest investigations on rattlesnakes were prolonged for half a century. Returning to America he was appointed to the charge of medical cases in an army hospital for nervous diseases, where he began researches that made him world famous and led to his election as foreign member of the Royal Society.

His truant publications were numerous, and included in 1871 Wear and Tear; in 1866, In War Time; in 1889, Cup of Youth, and other Poems; in 1901, Circumstance; in 1911, John Sherwood. He ranked salmon fishing with the writing of fiction as his favourite recreations. It is, perhaps, worth while to recall a quatrain from the welcome he gave to the portrait of Oliver Wendell Holmes when presented to the College of Physicians in Philadelphia:

<sup>1</sup> Thomas Pridgin Teale, the elder, and Thomas Richard Jessop both distinguished surgeons on the staff of the Leeds General Infirmary suffered the same disability.

The poet's rank thy title here completes, Doctor and poet—so were Goldsmith—Keats; The voices failing, murmur to an end With "Welcome, Doctor, Poet, Friend".

Many minor poets have been attached to medicine. In 1916 Dr C. L. Dana of New York published a little work Poetry and the Doctors, which referred to 162 medical men. The Danish anatomist, Thomas Bartolimus published in 1669 a work De Medicis Poetis and many references are to be found to medical poets (using the word generously). Chereau in 1874 published a work on Medical Parnassus which contained a list of no less than 479 doctors who were to be regarded as poets. In England those worthy of mention are Thomas Trotter (1760-1832), John Mason Good (1764-1827), who translated Lucretius into blank verse, Erasmus Darwin (1731–1802), Sir William Blizard (1743– 1835)-President of the Royal College of Surgeons, and for 53 years surgeon to the London Hospital where he operated in his eighty-fourth year-who wrote an ode for the opening of its Medical School in 1785; and Sir Henry Halford (1766-1844), President of the Royal College of Physicians of London.

Among poets should be mentioned John McCrae (1872–1918), a physician and pathologist on the staff of the Royal Victoria Hospital, Montreal, who wrote at least one poem that touches all hearts—In Flanders Fields, first published in Punch on December 8th, 1915.

Among artists who have been medical men, SIR FRANCIS SEYMOUR HADEN stands preeminent (1818-1910). He was the son of a medical man who wrote a work Practical Observations on the Management of Children, published in 1927 after his death. He was a "blue-coat boy" at Christ's Hospital, and his medical career was passed partly at home, partly in France, at Paris and Grenoble. He was elected F.R.C.S. in 1857. He became consulting surgeon to the Chapel Royal, and a Vice-president of the Obstetrical Society, and throughout his long professional life he enjoyed a large and important practice. Eminent as an etcher (he was founder and first President of the Royal Society of Painter-Etchers), most of his work, except for a few plates after J. M. W. Turner and Wright of Derby, was original and chiefly landscape. His professional rounds found him often with an etching plate in his pocket. His total works

number about 250. He was greatly influenced by Whistler, whose half-sister he married when he was 29 years old. He was not only a fine creative artist, but a distinguished critic, and especially devoted himself to scientific constructive criticism of Rembrandt's work as etcher. He founded the Royal Society of Painter Etchers, of which he remained President until his death. A. M. Hind says that in landscape "he was an artist of great breadth and keenness of vision, and his best works show a real sense of style, a true appreciation of the value of line, and a thorough command of an eminently virile technique".

Explorers, too, have been found in our ranks, few, but distinguished. Among the most famous is MUNGO PARK (1771–1806), whose earliest voyage was made as ship's surgeon at the age of 21. Three years later he undertook to explore for an African society the course of the River Niger. Though he traced the river for a long distance he was forced to abandon his task owing to the state of his health and the extreme destitution of all of his party. On his return home he published an account of this journey, and settled down to practice, and also married, in Peebles. The lust of adventure remained strong and he

went again to Africa in 1805, where he died in 1806.

Among the most famous explorers must rank DAVID LIVINGSTONE (1813-73), who was born at Blantyre, Lanarkshire. His great grandfather fell at Culloden, fighting for the Stuarts. David was the second of five sons. Like other poor youths of his day he started work early in life, going at the age of 10 to a cotton factory as "piecer". His first earnings were spent on books, and he attended school in the evenings after his day's work was done. Two works of Dick, Philosophy of Religion and Philosophy of a Future State, greatly influenced his life, and stirred in him such deep religious convictions that he decided to consecrate his life to the alleviation of human misery. He attended medical classes at Anderson College in winter and in summer the lectures of Dr Wardlaw on Divinity. Later in London, under the care of Dr Risdon Bennett (afterwards President of the Royal College of Physicians), he continued his medical studies. His hope was always that he might work in a missionary field, and influenced by Dr R. Moffat he chose Africa. He qualified at the age of 27, and in the same month was

ordained as missionary in Albion Chapel, London, and embarked for Africa. He at once secluded himself from Europeans, lived entirely among natives, and devoted himself to learning their language and customs. At the same time he studied the geology and natural history of the country through which he passed. In 1843 he started a mission station at Mabotsa, and here suffered the injury from a lion which later allowed his fractured humerus to be recognised. In 1849 he discovered Lake Ngami; in 1851 he discovered the Zambesi at Sesheke in mid-Africa. In 1852 the Royal Geographical Society awarded him a gold medal for his labours. In 1855 he discovered the Victoria Falls, and the following year was given an enthusiastic reception at the Royal Geographical Society, and received the freedom of the City of London. He was made F.R.S., and Oxford and Glasgow conferred Honorary Degrees upon him. In 1858 he discovered Lake Nyassa; and in 1868 Lake Bangweolo, which he believed to be the source of the Nile. For a couple of years the world believed him lost, and the New York Herald commissioned Stanley to go in search of him, who found him in Ujiji, but was unable to per-

suade him to return. Stanley lived with him for four months, and formed the most intimate friendship with him, developing for him an affection that reached to reverence. Livingstone, starved, tormented by mosquitoes and feverridden, died on May 1st, 1873. On April 18th, 1874, his body was buried in Westminster Abbey. Sir Bartle Frere, President of the Royal Geographical Society, wrote: "As a whole, the work of his life will surely be held up in years to come as one of singular nobleness of design and of unflinching energy and self-sacrifice in execution." And again: "I never met a man who fulfilled more completely my idea of a perfect Christian gentleman, actuated in what he thought and said and did by the highest and most chivalrous spirit, modelled on the precepts of his great Master and Exemplar." He is one of the few great Victorians whose glory time has in no degree diminished.

Amongst the greatest men of his day as explorer and constructive statesmen must rank DR GEORGE ERNEST MORRISON (1862–1920). Born in Australia, he became a wanderer over the world at the age of 18, while still a student. When 20 years of age he crossed Australia on

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foot from the gulf of Carpentaria to Melbourne, 2043 miles in 123 days. Wounded and left for dead with two spear-heads in his body, he yet came to Edinburgh to have them removed by Professor Chiene, and at the age of 25 took his medical degree. Before studying in Paris under Charcot he travelled again, and for a time was Court Physician to the Shereef of Wazan. He returned to Australia, and served the hospital in Ballarat for two years. In 1893 the lure of the Far East attracted him, and he walked from Shanghai to Rangoon. In 1895 there began his association with The Times, and in this year he proceeded to Siam. In 1897 he became The Times correspondent for China, and took up residence in the capital. During the struggle for political supremacy in China, his telegrams recorded from day to day the momentous vicissitudes, with the precision of a statesman and the accuracy of an historian. In 1900 he helped to defend the Peking Legations during the Boxer Rebellion and in despatches it was said of him that he rendered most valuable assistance-"Active, energetic and cool, he volunteered for every service of danger, and was a pillar of strength when matters were going badly." He was wounded.

He again wandered far over China until in 1912 he was appointed Political Adviser to the first President of the new Chinese Republic. Of him *The Times* wrote: "Morrison of Peking was known and liked the world over. He was always thorough and, although no sentimentalist, he had a large heart." "His intelligent anticipation of events" became proverbial. His work was invariably authoritative. By his unfailing tact, good humour, and unquestionable devotion to the best interest of China he preserved the respect even of those who differed from his opinion.

Towards the end of the nineteenth century lived two remarkable truants, first cousins, connected with the Medical School of the University of Cambridge, who broke the barriers of narrow category. ALEXANDER MACALISTER (1844– 1919) and DONALD MACALISTER (1854–1934), both famous for their profound, varied and encyclopaedic knowledge. It was said that between them all knowledge was their possession. Donald, who had been Senior Wrangler and first Smith's prizeman, "had the Mathematics, and Alexander everything else". Their knowledge of languages was extraordinary. Donald

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Macalister spoke twelve languages, most of them fluently, and it is common knowledge that when he was Principal and Vice-Chancellor of Glasgow University no foreigners visited the University with whom he could not converse in their mother-tongues. He was President of the General Medical Council, and showed gifts of administration and leadership worthy of a prime minister. He finally became Chancellor of the University. His poem Echoes was published in 1913. The book showed their author to be able to translate Spanish, Italian and Russian into English; Greek and German into Russian, and Provençal into Scots; while passages from Oliver Wendell Holmes and Robert Louis Stevenson appeared in German form, and quatrains from Omar Khayyam, ballads by Sir Walter Scott, and parodies by Calverley were rendered in Romany. Alexander Macalister admitted proficiency in no less than fourteen languages. He was Professor of Anatomy in the University of Cambridge for over 30 years and, as a contemporary of Humphrey, George Paget, and Michael Foster, played a great part in creating and establishing the fame of the Cambridge School of Medicine. In his teaching he

made Anatomy into a living science of profound interest. He made clear both its analogies, and its applications to surgery. But to regard him chiefly as anatomist would be to do grave injustice. He was a philosopher of vast knowledge and an archeologist whose favourite interests lay in Egypt. In the days when I examined for the Primary Examination for the Fellowship of the Royal College of Surgeons, his pupils would often tell of their endeavouring to find a weak spot in his knowledge of Comparative Anatomy. They would produce for his inspection a bone or fragment from some uncommon animal and ask Macalister for information as to its origin, position and function. The result was invariably disconcerting for, with hardly a moment for inspection, Macalister would give an exact and detailed description of the bone or fragment, its position, variations and uses, and would tell something of the animal from which it had come. A skilled draughtsman, he drew many of the illustrations for his book on Human Anatomy, in which the record of his personal investigations would sometimes startle the reader with their number and infinite variety. We have heard of the Provost of Eton who would solve The

Times crossword puzzle while his breakfast egg was boiling, and he disliked eggs hard-boiled, and we marvelled at the credulity of the statesman who told the story. But we can without hesitation accept the story that, seasonally, Macalister, during breakfast, would answer all the questions of a Theological Tripos paper. He delighted in shocking orthodox classical scholars by pouring unmeasured scorn upon the writings of Aristotle. His illimitable store of knowledge was contained in a very small head. When nearly 40 years ago the Anatomical Society of Great Britain met in Dublin, a tape was passed round the head of most of those attending. Sir John Lynn Thomas had the largest head and Alexander Macalister the smallest. One of the most learned of his time, his modesty, indeed humility, was most endearing; a great man, great teacher, versatile truant, and delightful companion. The obituary notice in the Journal of Anatomy contained the following paragraphs:

Endowed with a marvellous and orderly memory, infallible and almost uncanny in its tenacity for minute detail, Macalister had the most astounding facility for accumulating information and facts not only from books but at first hand from dissecting

room and museum. He would devote endless pains and infinite patience to obtaining and noting new facts, but once acquired they seemed to lose further interest and he could rarely be prevailed upon to publish them. Not a tithe of them appear in his published writings, some lie stored in countless notebooks, but many alas! are gone with him. In the disposal of his stores he was generosity itself, they were offered freely and openly to one and all to make what use of them they liked.

His lectures were an intellectual treat and are held as most valued recollections by all who were privileged to listen to them. His facile eloquence, lighted by occasional flashes of quaint dry humour, would at times fascinate and almost mesmerise his hearers. Following no tradition, shackled by no exigencies of examination, a rich spring of anatomical knowledge, ornate with morphological illustration and historical interlude, flowed out in a quiet but inspiring stream.

No professor ever spent so many hours in the dissecting room. He revelled in the practice of his art and was the neatest and most rapid exponent I have ever seen, devoting the same scrupulous care to the most trivial display as to the most intricate manipulation. To do adequate justice to Macalister's great learning and scholarship is an impossible task. Although he knew more about the anatomy of the human body than any man living, anatomy after all was but a small part of his mental equipment. He

was an able mathematician and familiar with many languages both living and dead. In Archaeology, Zoology, Egyptology, Theology, Biblical history, to mention but some of the subjects which aroused his interest, he was an inexhaustible mine of knowledge. In discussion on many and diverse subjects, he was conspicuously the authority and source of accurate information, often to the confusion of the expert. His indefatigable industry and insatiable thirst for knowledge persisted throughout life and in these respects he never grew old.

Among the most distinguished of oriental scholars in recent years was EDWARD GRAN-VILLE BROWNE (1862-1925) who took his M.B. at Cambridge in 1887. Little distinguished in early years, his first enthusiasm was for Turkey, threatened by Russia, when the war of 1877 was declared. He "would have died to save Turkey". It was the misfortunes of a Mohammadan power that brought him to the threshold of the treasure house of Oriental lore, of which Nature had made him one of the rightful inheritors. He began the study of the Turkish language, and "suddenly found his own soul". All his interests thereafter were devoted to Islamic languages. After winning the Pembroke scholarship, he was able to visit Persia, and had already

studied Persian so earnestly that his speech was of a standard rarely attained by Europeans after years of residence. The full story of his many contributions to Oriental knowledge and literature are fully set forth by Sir Denison Ross in a brief memoir attached to Browne's work A year among the Persians, who writes "On the Continent and in America he was regarded as the greatest authority on Persia, and he was universally recognised as one of the foremost Orientalists of his day .... " "That Edward Browne was a genius no man could deny, and his genius was of two distinct kinds; he not only fulfilled the condition of possessing the capacity for taking infinite pains, but also had the genius which reveals itself in the inspiration of the spoken word. For it was in his talk and conversation that the scholar, the wit, the enthusiast and the man of heart were revealed in full bloom, beside which his writings, with all their brilliance, are but so many pressed flowers."

In seeking to perpetuate the memory of those medical men who have earned great distinction in other fields, I have made no reference to actors, chief of whom was SHERIDAN KNOWLES (1784–1862), and SIR CHARLES WYNDHAM

(1837-1919), or to sportsmen, or to members of our profession still alive to-day. Among sportsmen we may, by common assent, claim the greatest of all cricketers, W. G. GRACE. His deeds are a part of English history, and need no reference here. His brother, Dr E. M. Grace, Coroner of Thornbury, played cricket for England in 1880, and for Gloucestershire for many years. I may put in a claim for the greatest footballer, one with whom and against whom in trial matches in early youth I had the honour of playing, LENNARD STOKES, of Blackheath, who died in 1933 aged 77. There must be other claimants for supremacy; but my own judgment puts two players of Rugby football ahead of all-Lennard Stokes and Ronald Palmer, killed in the War. Blackheath players are grateful to Stokes for securing the Rectory Field. The ease, grace and accuracy of his style in making dropkicks contrast favourably with those of any man who has since played. He could drop great distances from the midst of a surrounding crowd; his phenomenal dropped-goal against Scotland from considerably beyond the half-way flag will always be remembered in the history of the game. A contemporary record says the

ball travelled fully 80 yards. His running was brilliant and fast. In other departments of sport also he was very successful. As cricketer, he was a most stylish bat with great punishing powers; he was a splendid field and a clever lob-bowler. For some years he was in the East Kent Eleven, and with more leisure would undoubtedly have taken a prominent place among amateurs. He stood six feet and one inch in height, weighed thirteen stones, seven pounds. In the *Football Annual* of 1879, it is recorded that he was the best three-quarter back and the longest "drop" in England, a very good placekick and a sure tackler. He played for England in 1875–9.

Of lawn-tennis players I would place first among all JOSHUA PIM, now of Killiney, who qualified in 1891, and was singles champion at Wimbledon in 1893 and 1894, and doubles champion with F. O. Stoker in 1890 and 1893. Many expert judges regard him as the most perfect hitter of a lawn-tennis ball that they have ever seen, an opinion my own memory confirms. Mlle Suzanne Lenglen was indeed the only one to be considered with him, in respect either of accuracy or grace.

Among card players we claim "Cavendish", HENRY JONES, a medical man, not exceeded in authority in those tranquil days when whist was the game, before the turbulent but far more interesting days of bridge.

Among living truants to literature we find such distinguished men as Sir Charles Sherrington, former President of the Royal Society, a poet of no mean skill; Somerset Maugham; De Vere Stacpoole; Warwick Deeping; A. J. Cronin; Francis Brett Young; "Sidney Fairway": Austin Freeman, and James Bridie, of Glasgow. It is happily too early to write even a preliminary obituary notice; the final one will, I hope, be long delayed.

I have given a brief and imperfect record of some of the truants from medicine who have helped to create or develop our own or other branches of science, who have been greatly distinguished in the law, or in literature, or elsewhere. Their careers illustrate the influence of scientific training upon all mental activity, no matter in what field it may be expended. The habits early inculcated of acute and accurate observation, orderly and relevant arrangement of thought, close criticism of every stage in the

manifold processes leading to judgment and decision, conciseness in final expression, and impeccable intellectual integrity throughout, are for many of us acquired with infinite difficulty, but, once made our own, may be worn with natural ease and appear almost automatic. A scientific training is useful, not only in the work of an arduous and scientific profession, but in all other callings into which by accident or deliberate intention a man may chance to wander. It has always been one of the salient characteristics of medical men in all countries, and at all times, that they have ardently followed other pursuits than that of their own profession, and have indulged in other forms of culture. They have developed what the Greeks called parergon -work by the side of work. The great French painter, Ingres, was also famous for his skill in playing the violin, and the "violon d'Ingres" as symbol of a collateral pursuit has passed into current phrase.

I have gathered a posie of other men's flowers And nothing but the thread that binds them is mine own.





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