

Medical education : being a lecture delivered at King's College, London / by J. Forbes Royle.

Contributors

Royle, J. Forbes 1798-1858.
Cartwright, Frederick F. 1909-2001
King's College London

Publication/Creation

London : John W. Parker, MDCCCXLV [1845]

Persistent URL

<https://wellcomecollection.org/works/rmfn8mmh>

License and attribution

This material has been provided by This material has been provided by King's College London. The original may be consulted at King's College London. where the originals may be consulted.

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

MEDICAL EDUCATION;

BEING

A LECTURE

DELIVERED AT KING'S COLLEGE, LONDON.

BY

J. FORBES ROYLE, M.D., F.R.S., L.S., & G.S.,

LATE OF THE MEDICAL STAFF OF THE BENGAL ARMY.

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS, AND
DEAN OF THE MEDICAL DEPARTMENT,
KING'S COLLEGE, LONDON.



LONDON :

JOHN W. PARKER, WEST STRAND.

M.DCCC.XLV.

201058677 8



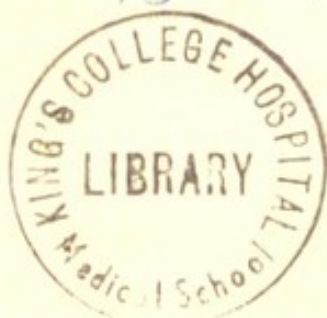
KING'S COLLEGE LONDON

698911
KLSMD



LONDON:
HARRISON AND CO., PRINTERS,
ST. MARTIN'S LANE.

King's Collection
15567



Presented by Dr. Cantowright
18.12.70

NOTICE.

THE following Address was delivered at King's College, by the Author, at the opening of the present Medical Session ; some of his Colleagues, as well as Gentlemen unconnected with the College, having expressed a wish that it should be published, the Author has taken advantage of the first leisure in his power, of revising it for the press. As he has endeavoured to comprehend whatever seems necessary for a good Medical Education, without omitting the accessory studies which are almost equally desirable for the members of a liberal profession ; he hopes that the essay may prove useful to those entering, and also to some who have already entered, upon their Professional studies. He has found, no doubt in common with many others, from the enquiries made to him, that very inadequate ideas are entertained, respecting the nature and extent of Medical studies, even by those most interested in the subject.

The Author begs to observe, that the Address was more hastily put together than it might have been, from his having miscalculated the time that would be required, in consequence of not having made sufficient allowance for the number of interruptions on the Dean's time at the beginning of the Session. This will also, he hopes, be received as his apology for not having quoted the several authors whose works he may have made use of. Having read the works of several authors on the subject of Education, and on the various Sciences here treated of, and made brief notes of the points to be touched upon, he did not

retain any further references for an address which was never intended for publication. This is printed nearly as it was delivered, with the exception of the parts which were left out in delivery, on account of the necessity of concluding within the hour.

In an Appendix, the Author has added tabular views of the Course of Education recommended by the Professors of King's College, and that which is required by the Metropolitan University, as well as that required by the Society of Apothecaries ; by the Royal Colleges of Surgeons, and of Physicians of London ; also for the Medical Departments of the Army, and of the Navy, as well as of the Honourable the East India Company.

CONTENTS.

- Occasion and Objects of Address, page 1.
- Nature and Importance of Profession of Medicine, 3. General View of Objects of Medical Study, 4.
- Medical compared with General Education, 5.
- Physical Education, 6. Moral, 8. Intellectual, 10. Mental Faculties, 11.
- Tabular View of Objects of Human Study, 12.
- Medical Education, 13. Preparatory Studies: Languages, Ancient and Modern, 14. Mathematics, 15. Natural Philosophy, 15. Chemistry, 16. Natural History, 17. Mineralogy and Geology, 18. Physiology, 19. Botany, 20. Zoology and Comparative Anatomy, 23.
- These, useful for the information they afford and as training to the mind, should form objects of General Education, 24.
- Recognized Medical Studies include some of the above, as Botany, Chemistry, 25. Anatomy and Physiology, 28. Number of Courses to be attended, with Dissections, 26.
- Students might be introduced to some of these Sciences, by attending short Courses in a Preliminary Summer Session, 26.
- Materia Medica and Therapeutics, 27. An advanced subject, 29.
- Necessity of studying these, as a basis for the more advanced studies, 30.
- For the illustration of these subjects, Specimens, Diagrams, and Drawings necessary, 31. Deposited in Museums of Anatomy, of Zoology, Botany, and Materia Medica. Anatomy taught practically in Dissecting Rooms. Chemistry in Laboratory, 31. Materia Medica, with Students' Collection and Experiments. Botany in Excursions, 32.
- Difficulties of Junior Students explained by Weekly Examinations and Resident Medical Tutor, 33.
- Chief Prizes awarded for proficiency in first division in Anatomy and Chemistry, and second division in Physiology and Materia Medica: with separate prizes for each subject, 35.
- Practical Branches of Profession, 35. Medicine—Principles, or General Pathology and Practice, 36. Surgery, founded on the same general principles, but requiring also manual dexterity, 37. Midwifery, and the Diseases of Women and Children, 40.
- Forensic Medicine, requiring a knowledge of previous subjects, and as applicable to Forensic questions, 41.

- The Principles of Medicine may be taught in Lecture-rooms, but the Practice must be learnt in the Hospital and Sick-room, 42.
- Time of entering to Hospital Practice, 43. Clinical Instruction, 43. Offices of Out and In-patient Dressers and of House Surgeons, also of Out and In-patient Clinical Clerks and the Physician's Assistant, open to the Competition of Students, 45.
- Prizes for proficiency in Medicine, Surgery, and Midwifery, and the chief prize or Medical Scholarship, for proficiency in all the subjects of Medical Study, 46.
- Necessity of Scientific Study of the Profession, 49. Medicine to be thus improved. Greater amount of knowledge now required, 50. Facilities for study increased, 50. Improvement of London Schools, 51.
- Advantages of a Scientific Study of Profession, 51. Objections answered, 53. Improved General Education will require increased Science in Medicine, 54. Observations on Reform in Profession, 55. Improved Preparatory Education should accompany Abolition of Apprenticeships, 56. Examinations and qualified Examiners, 57. Protection required both for the Profession and the Public, 57. Any greater facilities would be fatal to both, 57.
- Conclusion. Advantages afforded by King's College, both as a General and Medical School, 59. Increase in numbers, 61. Success of Pupils, 62.
-

COURSE OF EDUCATION RECOMMENDED BY THE MEDICAL
PROFESSORS OF KING'S COLLEGE.

THE Professors strongly recommend that four years should be spent in attending the various Courses of Medical Lectures in the College. Although a period of three years has been found sufficient to accomplish the attendance on the Courses prescribed by some of the Medical Corporations, yet the Student will certainly derive much more advantage from extending the term to four years, and thus diminishing the number of Courses which he is required to attend in any one Session.

| | | | |
|--------------------------------------|---|----------------------|---|
| First Winter Session. | { Descriptive Anatomy. General Anatomy and Physiology. Chemistry. | { Practical Anatomy. | Medical and Surgical Practice of the Hospital, and Clinical Lectures. |
| First Summer Session. | { Botany. Chemical Manipulation. | | |
| Second Winter Session ¹ . | { Descriptive Anatomy. General Anatomy and Physiology. Materia Medica and Therapeutics ² . | { Practical Anatomy. | |
| Second Sum ^r . Session. | { Practical Pharmacy. | | |
| Third Winter Session. | { Medicine. Surgery. Midwifery. | | |
| Third Summer Session. | { Forensic Medicine ³ . Practical Midwifery. | | |
| Fourth Winter Session ⁴ . | { Medicine. Surgery. Midwifery. | | |
| Fourth Sum ^r . Session. | { | | |

¹ Students who intend to graduate in the University of London are recommended to attend a second Course of Chemistry in this Session.

² Students who have not served an apprenticeship are recommended to attend two Courses of Materia Medica and Therapeutics.

³ Students attending the Lectures on Forensic Medicine, are recommended to avail themselves of the facility which will be afforded to them at this period of practising the application of tests for poisons under proper direction.

⁴ Candidates for the degree of M.B. in the University of London are recommended to attend a course of Lectures on General Anatomy and Physiology, and on Comparative Anatomy, in this Session.

CANDIDATES TO PRODUCE CERTIFICATES, OF HAVING

BACHELOR OF MEDICINE.—First Examination.

Completed 19th year; taken a Degree in Arts or passed Matriculation Examination; studied at a Medical School for two years; Dissected during nine months; attended a Course of Practical Chemistry, &c.; attended to Practical Pharmacy, &c.; attended a Course of Lectures on four of the Subjects in the annexed List:—

Descriptive and Surgical Anatomy. General Anatomy and Physiology. Comparative Anatomy. Pathological Anatomy. Chemistry. Botany. Materia Medica and Pharmacy. General Pathology. General Therapeutics. Forensic Medicine. Hygiene. Midwifery and Diseases of Women and Children. Surgery. Medicine.

Examined in Anatomy, Physiology, Chemistry, Botany, Materia Medica and Pharmacy.

Second Examination.—Two Years after the First Examination.

Passed the First Examination, and subsequently—attended a Course of Lectures on two other of the Subjects in the above List, for which the Candidate had not previously presented Certificates; Dissected during six months; conducted six Labours; attended the Surgical Practice of a Hospital during twelve months, and Lectures on Clinical Surgery; attended the Medical Practice of a Hospital during other twelve months, and Lectures on Clinical Medicine. Subsequent to this, of having attended to Practical Medicine in a Hospital, Infirmary, or Dispensary, during six months. A Certificate of Moral Character.

Examined in Physiology, General Pathology, General Therapeutics, Hygiene, Surgery, Medicine, Midwifery, Forensic Medicine.

DOCTOR OF MEDICINE.

Taken the Degree of Bachelor of Medicine (if not in this University they must produce a Certificate of having completed their 23rd year). Subsequently attended—to Clinical and Practical Medicine during two years in a Medical Institution, or to Clinical or Practical Medicine during one year in a Medical Institution, and practised his Profession during three years; or if he has taken the Degree of M.B. in this University, of having been engaged during five years in the practice of his Profession. (One year of attendance on Clinical or Practical Medicine, or two years of Practice, dispensed with in the case of those who at the Second Examination have been placed in the First Division.) Of Moral Character, signed by two persons.

Examined in Elements of Intellectual Philosophy, Logic, and Moral Philosophy, Medicine.

| MEDICAL EDUCATION REQUIRED BY | SOCIETY OF APOTHE- CARIES. | ROYAL COLLEGE OF SURGEONS. | ROYAL COLLEGE OF PHYSICIANS ² . | NAVAL MEDICAL DE- PARTMENT ³ . | ARMY MEDICAL DE- PARTMENT ⁴ . | MEDICAL SERVICE OF THE EAST INDIA COMPANY. |
|---|------------------------------------|--|---|---|---|---|
| Age | Above 21. | Above 21. | Above 26. | Between 20 and 24. | Between 21 and 26. | Above 22. |
| General Education . . . | Examined in Latin. | Latin and Greek. Testimonial of fit- ness for Fellow- ship ¹ . | Latin. Greek optional. | Classical Education | Liberal Education, with Greek and Latin. | — |
| Moral Character | Testimonials. | — | Unimpeached Moral Cha- racter. | Moral Character. | Certificates of Mo- ral Character and Conduct. | Qualification in Surgery. |
| Studied Professionally . . | Apprenticed five years. | Four years. | Five years. Knowledge of the phy- sical and collateral sci- ences, having reference to the structure and functions of the human body, and to the means of treatment. | | Diploma of the Colleges of Lon- don, Edinburgh, or Dublin. | To be examined in Surgery by the Royal College of Surgeons of London, or to have a Diploma of the College of Sur- geons of London, of Dublin, of Edin- burgh, or of Glas- gow ⁵ . |
| Chemistry | One Course. | One Course. | | Six months or three and 3 Practic. C. | Twelve months. | — |
| — Practical | Testimonials of Instruction. | | | Three months, with three Chemistry. | Six months. | — |
| Pharmacy, Practical . . . | Apprenticeship, five years. | Six months. | | Six months, or apprenticeship. | Three months, or apprenticeship. | Qualification in Physic. |
| Natural Philosophy . . . | | | | | Five months. | Examined by Com- pany's Physician in Practice of Physic; also in as much Ana- tomy and Physio- logy as necessary for internal diseases, and in Art of Pre- scribing and Com- pounding Medicines; also having attended |
| Botany | One Course. | | Studied. | Three months, and 3 m ^s . Med. Bot. | Three months. | |
| Anatomy | Two Courses | Three Courses. | Studied. | Eighteen months, or 12 & Comp. A. | Twenty-four months. | |
| — Dissections, &c. | Three Sessions. | Three Courses. | | Twelve months. | Twelve months. | |
| Comparative Anatomy, &c. | | | | Six months, with twelve Anat. | Five months. | |
| Physiology | Two Courses. | Three Courses. | Studied. | | | |
| Materia Medica and Thera- peutics | One Course. | One Course. | Studied. | Six months. | Four months. | |
| Medicine, Theoretical and Practical | Two Courses. | One Course. | Studied. | Eighteen months. | Eighteen months. | |
| Medical Practice, Hospital Clinical Medicine | Eighteen months. One Course. | One year. | Three entire years. | Two years. | Eighteen months. | |
| Surgery | | Two Courses. | Studied. | Six months. | Eight months. | |
| Surgical Practice, Hospital Clinical Surgery | | Three years. | | Eighteen months, or twelve & Mil. | Twelve months, or six and Military ⁵ . | Two Courses. Six months. |
| Military Surgery | | | | Two years. | Eighteen months. | |
| | | | | Six months. | Eight months. | |
| | | | | Six months, with twelve Surgery. | Six months, with six, as above. | |
| Midwifery, &c. | Two Courses. | One Course. | Studied. | Six months. | Five months. | |
| — Practice, Hos- pital | After first Course of Lectures. | One Course. | | Certificates. | | |
| Forensic Medicine | One Course. | | Studied. | | | |

¹ Candidates for the Fellowship will require extended attendance upon several of the above subjects, with the addition of Clinical Medicine and Clinical Surgery, Forensic Medicine, and Comparative Anatomy.

² The College of Physicians give no particular rules as to the details of previous education, or of the places at which it is to be obtained, but state that none but those who have had a liberal and learned education can presume, with the slightest hope of success, to offer themselves for approval to the Censors' Board.

Candidates have to undergo three Examinations: 1. Anatomy and Physiology; 2. Causes and Symptoms of

³ The Degree of M.D., a knowledge of Diseases of the Eye, and any branch of Science connected with the Profession, will be favourably considered in admission into the Service.

⁴ Required to be conversant in the knowledge of—1. Tropical Diseases, and those to which soldiers are most liable; 2. Military Surgery; 3. Cullen's Nosology; 4. Cutaneous Diseases; and 5. Diseases of the Eye. Also to be



Digitized by the Internet Archive
in 2015



<https://archive.org/details/b21301864>

A LECTURE,

&c.

MR. PRINCIPAL AND GENTLEMEN,

The revolving year again brings round the period when, refreshed by wholesome recreation, we resume our labours with more of the charm of novelty and the elasticity of health, than would ever fall to our lot, if we attempted incessant study ; for then we should produce only a wearisome round of unmitigated toil. This period affords us, moreover, the unalloyed pleasure of recognizing old faces, at the same time that we make new acquaintances; and thus, as in the world, we are enabled happily to connect, what is pleasant in the past, with the pleasing future of our academical years.

The occasion brings with it also the annual address from this Chair, which, though some may possibly welcome among the agreeable, others have ranked among its irksome accompaniments. As many have complained, so I cannot but feel, the difficulty of finding subjects which are meet, and at the same time important enough, to be brought before you.

Though the task may be toilsome, and the result of it irksome for you to hear, yet occasions may offer, when wholesome results may be obtained from this, as from other kinds of labour. It may, for instance,

afford us opportunities for treating of subjects, which do not fall legitimately within the scope of any individual Professor, and yet such as may, from their comprehensiveness and general application, be far too important to be altogether omitted. It may, moreover, give us an occasion to take a retrospect of the past, or a glance at the future. We may look back upon the difficulties with which we have had to contend, the exertions which we may have made, or contemplate the results which have now been attained. We may also learn to remedy defects, while we gain confidence for perseverance, in what have been acknowledged to be improvements; and thus, we may lay, in past experience, the sure foundations of future and continued success. The occasion, therefore, cannot be unimportant, which calls us to this self-examination; and this will not fail to be useful, if carried on in the proper spirit.

Besides these, which may be considered purely personal or local questions, periods may occur in the history of our own, as of other professions, in which it is not only desirable, but necessary, to understand our true position as members of a learned and liberal profession; to study its nature and objects, and view it in connexion with other sciences; at the same time that we consider it in reference to the community in general. We may ascertain also how we may best study it, how best uphold its dignity as a science, at the same time that we consider, how we may best become skilful practitioners. Taking this general view, we may put ourselves in a position to be able to appreciate, whether

we require, or are likely to be benefited by, any attempts made for our improvement. I have neither the intention nor the ability to follow out these various subjects, but they offer themselves to those who are willing to take advantage of the opportunity.

The office of Dean, however, to the individual holding which, the task of addressing you is assigned, is far from being one enjoying the leisure and calm composure, so necessary for literary composition: I must, therefore, crave your indulgence, for what has been more hastily written than I could have wished, as my time has moreover been much occupied with putting together the Rules and Regulations of the College, &c., in the form of the Hand-Book of the Medical Department, for the Use of Students.

On the present occasion, you will naturally expect to hear something having reference to the object which calls us together. This, I need hardly say, is the study of the sciences which are to qualify you, for the practice of Medicine. You may, therefore, wish to have considered the mode in which your education should be conducted, or the advantages which this Institution has to offer for its prosecution. Though many years have not elapsed since the establishment of this Institution, I have yet been long enough connected with it, to have seen many changes, and to have witnessed considerable accessions to our numbers, attendant upon the great additions to our means of usefulness.

You have no doubt already, in conjunction with your friends, anxiously considered the nature and duties of the profession, which many of you have already

entered upon, and which others are only about to commence. It is unnecessary, therefore, for me to dwell on the extent, the importance, or the general utility to mankind, of the profession of Medicine, or to make any endeavours to uphold its dignity. But I may appropriately dwell on its difficulties, as some of these are inseparably connected with the very nature of the subject, while others are the consequence of our imperfect systems of general education.

There are few difficulties, however, of any kind, or in any situation in life, which may not be surmounted by regular and systematic application. In Medicine, more, perhaps, than in most other subjects, we require to pay scrupulous attention, to the order, in which we encounter the several difficulties; as *some* may be much diminished, if *others* have first been grappled with. Methodical arrangement, therefore, is not less essential than untiring diligence, in the prosecution, not of *one* or *two* divisions of the subject, but of the whole of the studies, which, in their aggregate, form the Science of Medicine.

Some of these studies are purely scientific, others are strictly practical. Chemistry and Natural Philosophy treat of the intimate relations and properties of all natural substances, as well as of the powers of nature. They thus form necessary preliminaries, for fully understanding any of the Natural Sciences; and hence become a part of the studies of other professions, as well as of Medicine. So Botany and Comparative Anatomy treat of the structure and physiology of plants and animals, as well as of their classification, geogra-

phical distribution, and uses to man. They are, therefore, equally essential objects of study to those attending only to Agricultural or Horticultural pursuits, or to improving the Breed of Animals. Even Human Anatomy and Physiology are often studied by those who desire to become acquainted with the internal structure and functions of the body, to perfect themselves as painters or as sculptors; or who desire to study the wondrous works of the Creator, in his most elaborate and perfect specimen—Man.

The remaining, or strictly practical branches of your professional studies, are embraced in the subjects of Surgery, Medicine, and Midwifery, which elucidate the nature and treatment of both external and internal diseases, as well as those peculiar to women and children, and the process of parturition. They require for their study and practice, not only a complete knowledge of their own particular subjects, and of the preliminary sciences to which I have already alluded, but also of the means and substances, whatever be their nature, which are called Remedies, and which are employed to alleviate, or remove, the symptoms which constitute disease.

Before proceeding, however, to consider the details of Medical, it is desirable to take some notice of what constitutes General Education; for only then, shall we be in a position, to perceive the proportion our own part bears to the whole. But for this purpose we must not take Education in the limited sense, in which it is confined to reading, writing, one or two languages, a little arithmetic and geography, with some superficial

accomplishment ; but as embracing every thing which is calculated to fit man for the due performance of all the duties of his station. Therefore, in reference to the various functions, feelings, and faculties of man, Education is usually divided into Physical, Moral, and Intellectual.

By Physical Education, we understand the proper training of the body, both in infancy and in youth, so that in manhood it may be brought to the perfect performance of all its functions, and enable us to enjoy that first of blessings, *Mens sana in corpore sano*. The rules by which this can be best attained, may be ascertained by careful observation ; but they are dependent upon the laws of Physiology, and can be thoroughly understood only by those, who have studied the degree of influence, which physical agents produce on the different functions of life. Thus, those who thoroughly understand, what functions the skin has to perform, will readily assent to the absolute necessity of cleanliness, and to the utility of baths. One of the functions of the skin being the transpiration of fluid from the surface ; this, as well as that from the lungs, will be more or less promoted by the dryness or moisture of the air, and by more or less free ventilation. The purity of the air again, is essential to respiration, as upon it depends the purification of the blood, and consequently a vigorous circulation ; without which we cannot have healthy innervation, or a due performance of all the functions. Exercise alone can bring the muscles into a fit state, for efficiently performing, all the complicated movements of the body, and if taken in

the open air, will be doubly beneficial. Hence the amusements and the play of children, may justly be considered as performing important parts in physical education.

Few, will now deny the advantages, "of each individual taking such care of his constitution, as shall enable him to cope successfully with the duties and difficulties of the situation in which he is placed:" and if so important to the comfort of each individual, how essential must it be, to the happiness and increase in greatness of a country, that the health of the community should be scrupulously attended to? But we are only now thinking, of establishing Boards of Health, though the evils which require to be remedied, have increased to a fearful extent. This has probably arisen from the growth of such evils being usually gradual, for nature provides amply for what is essential, for the education of the body and the preservation of health, when man lives in the open country. But open space and fresh air, the means of taking exercise, and often even the full supply of wholesome food, diminish lamentably, as cities increase in size, and civilization seems to proceed. As medical men it is necessary for us to know, that we may be able to advise what is necessary to be done, as well for the health of *individuals* as of the *community*. For this the best preparation is certainly a course of medical study. As practitioners of medicine it is requisite for us to practise, what we may prescribe; for, as Dr. Warren has said, "a laborious and active course of duty demands a bodily vigour that can endure all kinds of unseasonable labour; a steadiness of fibre that

can bear, without agitation, the sufferings of others while attempting to relieve them; and a firmness of health able to resist the attacks of those malignant epidemics that prostrate a whole community."

Man, however, was not made for the gratification of mere animal enjoyments, or, as it has been said, to eat, drink, and sleep; though a great portion of mankind seem to consider these as the only objects to be pursued. He has been placed in a position where he has important duties to perform, not only towards his Creator, but also towards himself and his fellow man. On this Bishop Butler has well said, "Though we were intended to take care of our own lives, preserve our health, attend to our private good," yet we have also been "made for society, and to do good to our fellow creatures;" or, in other words, "that as the primary intention and design of self-love is the security and good of the individual, so is benevolence intended to secure the good of society."

Philosophers have shown that man is possessed of appetites, desires, and affections, which are the moving powers from which his actions proceed. But he may refuse to any of them the gratification they demand, in consequence either of a regard, for what he conceives may be for his own happiness, or in conformity to his sense of moral duty. At first his actions are only instinctive; they then become imitative, and, though perception may be quick, it is only as the reasoning powers are by degrees matured, and the conscience attains ascendancy, that the impulses of passion are controlled by the dictates of experience, of know-

ledge, and of the moral principle. Locke has observed, "It seems to me plain, that the principle of all virtue and excellency lies in a power of denying ourselves the satisfaction of our own desires, when reason does not authorize them. This power is to be got and improved by custom—made easy and familiar by an early practice."

Such being the importance of moral culture, and such the influence of habit, it is evident that moral training should form a part, not only of education, but of very early education. It cannot, therefore, be commenced at too early an age in the domestic circle—but it is often left off too soon: for we hear little of it, except in name, or as a lesson to be learned at our schools, and other places of instruction. Yet there it is more essential than any where, that such training should be conjoined with the culture of the understanding; for we cannot improve the one without making more easy the practice of the other. For education, requiring the concurrence of the will, by compelling us to substitute attention and useful application for idleness, or mere amusement, will, while it improves the intellect, at the same time induce habits of order, of regularity, and the desire of useful occupation. It will also make us acquainted, with the high gratifications arising from the culture, both of the moral feelings, and of the mental faculties. In the same way, tutoring the will, and the due control of the moral feelings, will not only improve us in virtue, but make more easy the culture of the understanding. Moral and intellectual culture should

therefore be most appropriately joined together in places of education.

As practitioners of medicine, we are brought in contact with all classes of the community, and with every diversity of temper, in every variety of suffering; it is, moreover, our especial duty to make our time and attention subservient to their relief. We have often, in addition to our professional duties, which involve the most serious responsibilities, to act as friends of the family, and advisers in their most private affairs. A series of duties and offices requiring much self-denial, composure, and a self-control, which can only be the result of moral training.

As moral agents we have certain duties to perform. These are such, as can be fitly performed, only by the cultivation of our several faculties. Some occupations, indeed, consisting almost entirely of bodily exertion, may seem to require only the improvement of our physical powers. But as no station, however high, can free a man from the necessity of paying attention to, and taking care of, his health; so no situation, however low, or high, it may seem, places a man, beyond the pale of his moral responsibilities to his fellow man, in the several relations of life, or where it is not incumbent upon him, to perform his duty towards his Creator. It is, therefore, essential for us all to cultivate our understanding, in some degree at least, at the same time that our bodies are exercised, and our wills controlled. In the present day the necessity of education is generally acknowledged; and instead of contending against it,

societies have been formed for, and the Government have favoured, the extension of its advantages. But still, the majority of people, by the word education, understand only, intellectual education, and much neglect moral training.

For the due cultivation of the intellect, it is necessary for us to be acquainted not only with its nature and powers, but also with the objects upon which it should most fitly be employed, both as applicable to all, and as suited to particular pursuits. Man we find provided with Senses, which are the media through which he receives his impressions of the external world. Of this he retains the Ideas, so as to be conscious of his own existence, as well as of what passes around him. These ideas become so associated together, as to follow in successive trains, and may be formed into new combinations, as in the exercise of Imagination. According to the more or less attention we give them, they form also the invaluable faculty of Memory, which enables us to connect the past with the present; and thus to acquire knowledge, and improve in experience. Or we may abstract, or consider some properties of bodies apart from others, and make use of them for the purposes of Classification. Again: we may compare one thing with another, and trace their connexion as cause and effect; that is, submit them to the operation of Reason. Of these several operations, or faculties, as they have been called, various explanations have been given by different philosophers. These we need not, for our present purpose, concern ourselves with: because, for the practical purposes of education, and the

improvement of our intellect, it has been well ascertained, that our several senses, as well as the powers of feeling, of observing, and of thinking, may all be improved by use and exercise.

As Medicine is a science which depends upon accurate observation, and upon correct inferences being drawn from what has been observed, we ought to have all our faculties so exercised and trained, that we may allow nothing of what is before and around us, to escape our notice. At the same time, we must take care to avoid coming to hasty conclusions, and be sufficiently aware of the modes and fallacies in reasoning, not to make illogical deductions.

The intellect requires to be exercised, not only that the several mental operations may be properly performed, but also that we may be able more easily to acquire and readily to retain the different kinds of knowledge, necessary for the full performance of our several duties, as well as, for the ordinary business of life.

That we may have the means of comparing the objects of what should constitute General, with what is specially Medical Education, we may briefly enumerate the several branches of knowledge under the heads of

Grammar, with Languages, both Ancient and Modern. Biography, and History.

Metaphysics, treating of the Nature and Operations of the Mind: with Logic, teaching Right Methods of Reasoning.

Morals, Law, and Religion; informing us of our duty to our Creator, our neighbour, and ourselves.

Mathematical Science; treating of the Properties of Numbers and of the Relations of Space.

Natural Philosophy. Chemistry.

Natural History; including, under this head, everything relating to Minerals, Plants, and Animals: and, therefore, including Geography, Meteorology, and Geology, as well as Physiology.

Application of these sciences to Medicine.

Useful Arts: Agriculture, Engineering, Manufactures, &c.

Fine Arts: Music, Painting, Sculpture, as Accomplishments.

The object of Medical Education is to fit those aspiring to be members of the profession, for becoming properly qualified practitioners. Justice to the public requires that we neglect no means, however trivial or difficult they may appear, which will enable us more easily to acquire, and more firmly to retain, whatever may be necessary to qualify us for our responsible and all-important duties. For our own sakes, we ought, in addition, to attend to whatever, though extraneous from strictly medical studies, may yet be useful in enabling us to maintain our position, as members of one of the liberal professions, in the age in which we live. Justice to the public, moreover, requires, that Schools of Medicine should possess all the means, and pursue the best methods, for enabling students to employ their time to the greatest advantage, while qualifying themselves for the duties of their profession.

Some, therefore, of the preparatory studies may be cursorily noticed, because they are required in some of your preliminary examinations. Thus, some knowledge of Latin has long been insisted upon by the Society of Apothecaries, and will in future be required, as well as Greek, for the Fellowship of the College of Surgeons. Both Latin and Greek are necessary for the Matriculation Examination at the University of London, as at other Universities where a degree in Arts is required, before proceeding to take a degree in Medicine.

Without looking to higher considerations, you will readily admit that, far from neglecting, we should sedulously cultivate languages from an early age. Many of our terms in science and art are derived from them; many of the Masters of the profession have left us the results of their experience in the Latin and Greek languages; and we still use the former in our prescriptions. Translation from them is one of the best methods for learning the art of Composition. The study of the ancient languages, moreover, trains our minds and forms our taste, at the same time that the perusal of the history and biography, the poetry and philosophy, of the Greeks and Romans, yield the highest gratification. But, while advocating the study, I am far from wishing, that they should occupy so much time as they are still made to do, in most schools; or that the modern should be sacrificed for the ancient languages. French and German you will find as useful for merely professional purposes, as for the general intercourse of life. I rejoice, therefore, that Examining Bodies, instead of relaxing, are every now and then forming new

regulations, for the ancient languages continuing to form, a part of the preliminary education of the members of our liberal profession.

Some knowledge also is requisite of Mathematical science. Mathematics, treating of quantity and proportion, or of the properties of number, and of the relations of space, form the only secure basis for the prosecution of exact science. They store the mind with a vast number of useful facts, applicable to every relation in life; train the mind to habits of correct reasoning, and the art of drawing legitimate inferences. The want of this is very observable in the world generally, no doubt from the defective nature of General Education. It is very conspicuous also, in many medical writings, owing probably to the immethodical habits, which have so long prevailed in the ordinary course of study.

Having already made some observations on Moral Philosophy and Metaphysics, with Logic, or the right use of Reason, I only mention them again as forming a part, with a portion of Mathematics, of the Examination for Arts in the University—a preliminary examination, which I should like to see introduced for all who are entering upon the study of Medicine. For those who have not taken a degree in Arts, Logic, the Philosophy of the Mind, and Moral Philosophy, form, with Medicine, the subjects of the Final Examination, for the degree of Doctor of Medicine in London.

Natural Philosophy, as well as Chemistry, instead of being viewed in the light of merely professional studies, should form parts of a good general education. They will

always prove firm bases for any professional study. By studying the nature of the moving powers, and the laws of solids and fluids at rest and in motion, we are enabled, thoroughly to understand, the admirable mechanism of the human body, to see how the impediments to the circulation of its fluids must be overcome; what are the effects of atmospherical vicissitudes, whether these be of pressure, of temperature, or of dryness, and how they affect the functions of respiration, and of cutaneous transpiration. So the laws of light, and of sound, enable us to appreciate the beautiful adaptation of the organs of Sight, and of Hearing, to their respective purposes. Without a study of the laws of Heat, we are unable to understand the peculiarities of temperature, the varieties of atmospherical phenomena, or the numerous operations, as well of nature as of art, which are as much the business of the Chemist, as of the Natural Philosopher to examine.

As the Chemist makes it his peculiar business to examine the nature and composition of all bodies, and to investigate the laws which regulate the combination of their various constituents, as well as the characteristics of the compounds which these form, it is evident that his Science is of all-pervading influence. It is surprising, therefore, that Chemistry is not more generally studied, as a knowledge of its principles would enable the riches of many an unknown field and mountain range, both at home and in our Colonies, to be inquired into and ascertained. Many valuable products of boundless forests, in different parts of the world, fall annually to the ground unnoticed and un-

known. These, if analysed, might be found to contain some principles valuable for our manufactures, and thus to add fresh articles for increasing commerce. Though some of the Arts, such as Dyeing, cannot, in the present day, be carried on successfully without the assistance of Chemists, yet many persons are lamentably ignorant, of how their own particular Art might be benefited by the aid of Science. It is only of late, that Agriculturists have bethought themselves, of inquiring into the chemical composition of the products, and into the nature of the food of plants, in order to ascertain whether their soils and manures are suited for the plants they put into them. For the proper study of the Functions performed both by Plants and Animals, a knowledge of Chemistry is essential, and it has therefore long formed one of the objects of professional study. Without it we should be ignorant, of the intimate nature of the products of Animals, either in health or in disease, and be unable to understand the phenomena of several of the functions of the body, or the changes which take place in them in disease. We require a knowledge of Chemistry for the preparation of Drugs; also for understanding the principles which require to be attended to, in their prescription and administration. Animal Chemistry, also, by informing us accurately of the changes, which take place in many of the secretions in disease, will no doubt lead to great improvements in practice.

But before examining intimately, the nature and composition of these bodies, whether Mineral, Vegetable, or Animal, we should surely know something of

what are the characteristics by which they are externally distinguished. It is impossible, indeed, to make use of our senses, without becoming acquainted with some of these. So much, indeed, is this the case, that we early fancy that nothing is more simple, than to distinguish a plant from an animal, or both from a mineral. But if we examine the works of nature, through their various gradations, we shall come, at last, to limits where we shall find it difficult, to apply the simple Linnean definition, “*Lapides crescunt, Vegetabilia crescunt et vivunt, Animalia crescunt, vivunt et sentiunt.*”

Minerals, or all bodies found in, or upon the earth, which are neither animal nor vegetable, whether solid, liquid, or aëriform, *may* be, and *are*, arranged in different systems, either according to their external characters, or their chemical composition. Crystallography is a branch of the Science which describes and explains the relations subsisting among the crystalline forms of Minerals, and Geology makes us acquainted with the structure, relative position, materials, and mode of formation, of the mineral masses which compose the crust of the earth. As it is not possible to examine the chemical composition of bodies, without becoming acquainted with some of their chemical characters, so, except for special purposes, we may consider it sufficient to become acquainted with minerals, as objects of the Chemist's attention. But that some knowledge of the Mineral World is both useful and interesting, is evident from the numbers of those who take an interest in Geological, in preference to other Sciences. As Medi-

cal Men, we may often derive considerable advantage from Geology, in examining or describing the Medical Topography of a new district, or one which may be the site of some Epidemic.

Important, as it is for us, to be acquainted with the forms and characters of inert matter, and with the laws by which it is controlled; it is equally so, and still more interesting, when we see it first endowed with life, as we seem to perceive the clue by which we may unravel, some of the hidden mysteries of our own nature. The importance is as great as the interest, of that Science, which comprehends the study, of the countless beings, which are endowed with life. Whether we examine the boundless ocean, or the trackless desert, the luxuriant tropics, or the frozen regions of the poles, the fertile valley or the apparently barren mountain, everywhere we find signs of life, and living beings, fitted to exist, in health and vigour, in the most discordant and dissimilar climates, and everywhere displaying the beneficence and wisdom of the Creator. Among these beings, therefore, we find a Ray and a Denham, as well as a Paley, looking for evidence, in their Natural Theologies, of the existence and goodness of the Deity. Bridgewater Treatises have also been written in elucidation of the same subject.

Such subjects can scarcely be contemplated without the cultivation of our intellect, and the improvement of all the best feelings of our nature, and yet we sometimes hear the study of Natural History stigmatised as trifling and unimportant. But in this, as in many other things, men often take their own ignorance, as

the gauge by which they attempt to measure the knowledge of others. We are not likely to over-estimate the importance of studies, which have occupied the first intellects, from the time of Aristotle to that of Cuvier, and of Theophrastus to that of our own Brown, acknowledged, throughout Europe, as "*facile Botanicorum princeps.*"

The science which treats of Plants, as at present taught, is distinguished remarkably, in comprehending within itself, subjects, such as the Anatomy, Physiology, and Systematic Classification of Plants; which, with respect to Animals, are divided into several heads, as Zoology treating of their external form and Classification, Comparative Anatomy and Physiology of their internal organs, with their respective functions.

Botany, forms a part of the Medical curriculum of most licensing Bodies, and justly so, as so large a portion of our remedial agents are obtained from the Vegetable Kingdom. These you ought, therefore, to be able to recognise, in whatever part of the world you meet with them. This is no trivial advantage, if you consider, that British Schools of Medicine supply Practitioners, for an Empire on which the Sun never sets; and in some of the remote provinces of which, some of you may not unlikely have to rely for remedial agents, on your own previously acquired knowledge of the Products of Nature. But, having to study a science, it would ill become me to advocate, or for you to take, so limited a view of its advantages, as to confine your attention to only one of its divisions.

As Physiologists, you cannot but feel interest in

noting the first appearances of life, in conjunction with the simplest states of organized matter, and in watching the gradual developement of the more complicated forms of Vegetation. You will be surprised, also, in observing how close is the resemblance between several points of minute vegetable and of animal structure. Many of the Functions, also—as absorption, circulation, respiration, nutrition, secretion, and reproduction of the species—you will find so perfectly performed, that, when occurring in the animal kingdom, they are called *vegetative functions*. The geographical distribution of Plants, moreover, and their properties as connected with structure, you will find interesting and philosophical departments of the Science. The Physiology of Plants ought to form a part of the study of Scientific Agriculture, quite as much as Chemistry. Botany has sometimes been made repulsive, from the way in which it has been taught. The immense multitude of objects necessarily requires a great variety of names. Some persons, unfortunately, have become so enamoured of these, as to teach them, before imparting a knowledge of the things, which they are intended to indicate. But even the language of Botany is not unworthy of Study; for Mr. Whewell, in his “*Philosophy of the Inductive Sciences*,” has said, “The formation of an exact and extensive descriptive language for Botany, has been executed with a degree of skill and felicity, which, before it was attained, could hardly have been dreamt of as attainable.”

As one of the objects of all Education is to train the intellect, we must not lose sight of some of the advan-

tages attendant on a careful attention to such pursuits, as those of Natural History. Among these, we may enumerate, the culture of the habit of observation—that of distinguishing and defining, nearly similar objects—as well as, learning to arrange, in a methodical manner, an immense number of distinct subjects. The latter is, of itself, of no small importance; it has been successfully accomplished, and its principles are of extensive application.

Mr. John Mill, a profound thinker of the day, in his recently published work, entitled, “*A System of Logic, or a Connected View of the Principles of Evidence and the Methods of Scientific Investigation*,” says:

“Although the scientific arrangements of organic nature, afford, as yet, the only complete example of the true principles of rational classification, whether as to the formation of groups or of series, those principles are applicable to all cases in which mankind are called upon to bring the various parts of any extensive subject into mental co-ordination. They are as much to the point when objects are to be classed for purposes of art or business, as for those of science. The proper arrangement, for example, of a code of laws, depends upon the same scientific conditions as the classifications in natural history; nor could there be a better preparatory discipline for that important function than the study of the principles of a natural arrangement, not only in the abstract, but in their actual application to the class of phenomena for which they were first elaborated, and which are still the best school for learning their use.”

Interesting as it is to observe the phenomena of Life in connexion with matter, it is still more so to examine them, in beings endowed with sensation, and usually with the power of locomotion. For these belong to the same great Kingdom of Nature, as Man, who is to be the object of your study. Commencing the study of the Animal Kingdom, with the complex machinery of the most highly developed specimen, Man, we may examine the various parts, internal as well as external, either according to their position or the functions which they are intended to perform, or separating the various organs into the several parts and textures of which each is composed—we may follow them in the various gradations of form and complication in which they present themselves in the different tribes of animals, until we find them as simple tubes or membranes, performing the same functions, which in Man require a complicated apparatus.

Instead, however, of descending from the more, to the less complicated forms, we may reverse the order, and first take the lowest forms of animal life, some of which hardly differ, from the simplest vegetable beings. Like them, they are composed of cells and tubes, where we can with difficulty perceive anything like locomotion, and have not been able to discover any symptoms of sensation, or the rudiments of a Nervous system. Such a study cannot but improve your knowledge of the nature, and give you a more general and philosophical view of the Anatomy and Physiology, of the Human system. So closely, indeed, are these connected with General Anatomy and Physiology, that

few attempt to teach the one, without drawing their illustrations from other tribes of the Animal, or from the Vegetable Kingdom. Comparative Anatomy, though first studied and carried to a high degree of perfection, by a British Surgeon and Philosopher, the immortal John Hunter, has only recently been acknowledged, among the requirements of Medical Students.

These subjects cannot fail to improve our habits of observation, our memory, and our reasoning powers; and, if we do not neglect the more general subjects, of the Distribution of Plants and Animals, their habits, and admirable adaptation to the various situations in which they are found, the imagination might be indulged, the taste refined, and the moral and religious feelings rightly cultivated, by looking through Nature, up to Nature's God.

As Students of Medicine, we have to lament that some of these studies do not form parts of General Education; as Nature's great masterpiece, Man, is to form the study of our lives, and we have often to come with senses but imperfectly exercised, and the mind untrained, to endeavour to master, in a short time, one of the most extensive, and certainly the most difficult, of studies—that of Medicine. It is, therefore, unfortunate that the general bearing of other studies, preparatory to professional, has not been earlier appreciated in our Schools and Academies.

It is possible that, as the necessity is felt, it may come to be provided for. That this is not chimerical, may be inferred from what has already taken place, with respect to the Military Academies, established by the

British and East India Governments. For entrance into these a course of Preparatory Study is necessary, in consequence of the inadequacy of General Education. A part of this preparation coincides with what is required for the Medical Profession, and is found to be mastered by youths of 16 and 17. I should be sorry to think, that the aspirants for distinction in the art of Healing, should shrink from a trial which is mastered by those, who desire to excel in what are usually called the Arts of Destruction, but which may, with equal truth, be termed those of Self-Defence.

Though we may reverence religion, honour literature, and love the sciences,—we must make it the business of our lives to study our profession. Here, the all-important question will immediately occur—How can this best be done? On careful consideration of the objects in view, and of the modes in which they are to be attained; many of those best qualified to form an opinion, have recommended,—that, commencing with a basis of general science, such as I have indicated, the Student should proceed at first to the preparatory Sciences, which are included in the usual curricula of Medical Education.

Having already mentioned the importance of Chemistry, as a subject of General Education, it must not, therefore, be supposed that it is less necessary to a purely Medical Education. It is, in fact, indispensable: for we require it, not only for enabling us to understand the composition of bodies, the phenomena of nature, and of many of the functions both of animal and vegetable structure, but also for understanding the

changes which take place in the several substances, which we may compound or prescribe as remedial agents. Likewise that we may know how to counteract the action of a poison, or detect its presence when it has been administered, whether accidentally or with a criminal intention.

Along with this study of the composition of bodies, and the laws which influence their combination, we must take the earliest, as well as the latest period, to make ourselves thoroughly acquainted with the structure and functions of the Human Body, that is, with Human Anatomy, and with Physiology. Having stated that the Anatomy and Physiology of Animals, as well as of Plants, are valuable, because they elucidate the intimate structure and functions of man, I have said almost enough to show how important these studies must themselves be, if the others derive their chief value, from the collateral aid which they afford.

This, however, is readily acknowledged ; and the several Boards of Examiners have insisted that not only one, but that two, and three, Courses of Lectures, on Anatomy and Physiology shall be attended, and that practical acquaintance, shall be acquired by careful dissection. Upon a due knowledge of the different organs of the body, and the functions which they respectively perform, and upon our knowledge of the nature and the influence of external physical agents, will depend the rules for the preservation of health, or Hygiene, as it is termed.

As some of the studies I have mentioned are preliminary to the proper Medical Sciences, it appears to

me, that a portion of the difficulties at present experienced, might be partially obviated, if students were to commence their attendance at Lectures with the Summer, instead of with the Winter Session. They might then pay attention, to short Preliminary Courses of Natural Philosophy and of Chemistry, as well as to the ordinary Courses of Botany, of Zoology, or of Comparative Anatomy. By this means they would be gradually introduced to the objects, the principles, and the nomenclature, of some of their principal Studies, and thus be better enabled to commence attendance during the ensuing Winter Session, on the complete Courses of Anatomy and of Physiology, besides Chemistry and Materia Medica and Therapeutics. These Courses, students generally attend in their first Winter Session, and very commonly without any previous preparation. It is not, therefore, extraordinary, that they find themselves puzzled, not only by the number of subjects, but also by the multitude of new names. These, however necessary to designate distinct objects and new ideas, are yet extremely embarrassing to beginners, however much they may be interested in the subject to be learnt. In the proposed addition of short preliminary Summer Courses, many of the same difficulties would be encountered in the first instance, as much of the same nomenclature is common to several kindred sciences.

The next subject, which should be studied in consecutive series, is that of Materia Medica and Therapeutics. But I have some difficulty in stating positively, whether you ought to attend this Course in the

first or in the second year of your attendance on lectures. The difficulty does not arise, from my not knowing what is proper to be done, but because this, is not always convenient for students to do; as some devote *three*, and others *four* years, to their studies in London. Some, moreover, have learnt many of its details while serving an apprenticeship; while others, who have not done so, find it difficult to master so complicated a subject, in a single Course of Lectures.

That the Course is complicated is evident from its comprehending Pharmacy, Therapeutics, Dietetics, and Regimen. The term Pharmacy, is often confined to the mere compounding of drugs, but is by others considered synonymous with *Materia Medica*. The Course treats of Drugs—that is, of their origin and external characters, as well as of their intimate nature; so that we may be able to distinguish the genuine from the adulterated; also, of the proper modes of preparing them in the first instance, and of compounding and dispensing them. Many of these processes are of a chemical nature, as also are the tests for detecting impurities. Thus it is impossible to follow their description, when briefly related, without a previous knowledge of Chemistry. Moreover, the means which we employ as remedial agents, being either the general powers of Nature, or Mineral, Vegetable, or Animal substances, another difficulty occurs, for we are introduced at once, to the peculiar nomenclature and methods of classification of several sciences. The Course ought, therefore, to be preceded by some knowledge of Botany, or of some of the branches of Natural History; and,

for this reason, cannot well be studied in the first Winter Session. But, as much of what is to be learnt, requires only the exercise of the senses and of the memory, and as much is so learnt, by those who serve an apprenticeship, so those, who do not do this, should supply its place by additional attention to the course of *Materia Medica*. Being content at first to use, as much as possible, their powers of observation and of memory.

The articles of *Materia Medica* are, however, interesting to us, chiefly on account of the effects, they are calculated to produce as Medicines. The Therapeutical part of the Course is necessarily an advanced subject, as it presupposes some knowledge of Physiology and of Pathology, or of the various organs and functions of the Body, both in health and in disease. The object, also, of administering Medicines being to restore an organ or function to a healthy state, this part of the Course treats of some of the same subjects, though in different points of view, as are treated of in the Course of the Practice of Physic. But, in the Course of *Materia Medica*, the properties of Medicines as calculated to produce certain effects, being prominently treated of, they are grouped together as such. And, though we form classes of Stimulants and of Sedatives, of Alteratives, and of different kinds of Evacuants, no two are exactly alike, and therefore we may select one or other, according as the peculiarities of a case or of a constitution require; or, as one has lost its effect, we may employ another, possessed of similar or of analogous properties. This general view of the properties and uses of medicines can be best studied in a Course

devoted to the purpose, while the special application of each, may more appropriately be pointed out, in the Lectures on Medicine, Surgery, and on Midwifery, and their practical uses, learnt in the Hospital.

Some, who take a limited view of the nature of their profession, and are ignorant of the subject they decry, will endeavour to detach you from this study. To the neglect of it, in this country, is owing our great ignorance of many most important points, which should long since have been ascertained. These gentlemen may sometimes be heard to say that half a dozen medicines are sufficient for all purposes; but we have never seen them placed in any situation, as in our Colonies, where they had to depend upon their own knowledge, of what the country afforded. They are, besides, the only witnesses of their practice, and the sole judges of its success.

The foregoing subjects, with the exception of some parts of the last, form the Preparatory Courses of the study of Medicine, and will form a firm basis, upon which the successful practice of Scientific Medicine may be founded.

The necessity of attending, in the first instance, to the above pursuits, is apparent, from their being those required in the First Examination for Bachelor of Arts in the Metropolitan University. It is also the order in which they are required to be attended by the Society of Apothecaries, and that which the Professors of King's College, have concurred in recommending, as the most eligible course of study. (*Vide Appendix.*)

These Sciences, treating of material substances, can

only be efficiently taught, in Lecture-rooms where ample stores have been provided of the objects described, and of everything required for their illustration. Museums, therefore, require to be provided, amply furnished, well arranged, and their contents correctly named. In these respects I do not, I think, assume too much, when I state that the Medical Department of King's College is amply provided.

Thus, for the study of Anatomy, the Museum contains numerous and well-assorted preparations of Normal structure. The Lectures on this, as well as all the other subjects requiring them, are illustrated with a most extensive and valuable collection of diagrams and drawings. This subject is, moreover, practically taught in the Dissecting Rooms, by the Demonstrators Messrs. Simon and Bowman. Morbid Anatomy is illustrated by specimens of morbid structure, deposited in the same Museum, with casts and models. All these are also necessary for the practical courses.

Physiology, in like manner, in addition to diagrams and well selected preparations from the Museum, is illustrated by recent dissections, illustrative experiments, and by the use of the microscope.

Chemistry is so purely an experimental science, that it requires a well-assorted and extensive, as well as an expensive apparatus, both philosophical and purely chemical, together with a laboratory, and a collection of mineralogical specimens, metallurgical, and chemical preparations. The collection of instruments, illustrative of the different departments of Natural Philosophy, now deposited in the Museum called that of George

the Third, may be considered as complete as it is unique, while, of the other requisites, you will find an ample store in another Museum. But Chemistry can only be thoroughly learnt by practising what you have seen and heard. To facilitate this object, there is a special Laboratory for the use of students, in which a Course of Chemical Manipulation is given by the Demonstrator of Chemistry, Dr. Miller. The practical skill to be acquired in such operations, will not only be useful, in teaching you how to detect impurities in drugs, but also the presence of poisons in cases of Forensic Medicine.

In like manner, the Lectures on Comparative Anatomy and on Botany are elucidated by drawings, and by the use of the microscope, by zoological specimens, and an extensive Herbarium, preserved in the Museum for these sciences; or specimens are obtained fresh for the occasion. The Professor of Botany, and the Professor of Geology, moreover, make excursions, in which you may learn how to study the works of Nature in the field, as well as in the closet.

The Lectures on Materia Medica are similarly illustrated, with a numerous collection of specimens of medicinal drugs and preparations, for which the College has been indebted to the Society of Apothecaries, and to the late President of the College of Physicians. There is also a large collection of diagrams and drawings, and suitable chemical experiments are made. In addition to these, there is a smaller collection of specimens for the use of Students, which they can freely handle, and thus become acquainted with the external

appearance, taste, and smell, of what they will have to recognize, as genuine or spurious, in their Examinations, and after-dealings in the world.

Though the extent of illustration may be more than sufficient, and the Lectures as full as may be requisite, yet it does not follow, that the lecturer is always understood; nor is there any security, that what is understood at the time, is afterwards remembered. For this we have endeavoured to provide by instituting Weekly Examinations, where, in the style rather of familiar conversation, than of formal examination, the whole subject is again gone over. Then, all have the advantage of hearing each other's answers, as well as of asking questions in explanation; so that obscurities, cannot but be cleared up, and difficulties smoothed down.

Knowing, however, the difficulties with which the younger students have to contend, and how difficult it is for them, to recover lost ground, or to make up for time misspent; we last year recommended to the Council that a Resident Medical Tutor should be appointed, for the express purpose of assisting them in their studies. Dr. Johnson was, in consequence, selected for the appointment. As his object is to assist the junior students in overcoming some of the difficulties which they have to contend with, he arranges his pupils in classes, and devotes different hours and days to Anatomy and Physiology, to Chemistry, and to Materia Medica. Each class is examined *viva voce*, upon the subject of the lectures, which the pupils have been attending during the preceding week. An opportunity

is thus afforded, of ascertaining the progress which each student is making, of correcting misapprehensions, and of explaining such difficulties as may have arisen.

Having taken all reasonable precautions to provide sufficient means both for *lecturing* and for what has been called *direct teaching*; there were yet to be provided means of affording direct encouragement, as well as the prospect of ultimate advantage, to induce students to pay attention to their studies. For this purpose Prizes were authorized by the Council. These have been awarded for the last four years, on a plan recommended by the Professors, as one, which they conceived best calculated, for the promotion of a good Medical Education. (Vide *Hand-book of Med. Department, K. C.*)

Medicine being a Science composed of many parts, in the union of which consists perfection of study, so we have endeavoured to encourage Students, to take up two or more sciences in conjunction; rather than to follow the apparently more brilliant, but certainly less useful plan, of sacrificing everything, for attaining excellence in one branch of study only.

Hence, our Prizes and Certificates of Honour are awarded for proficiency in two or more subjects, instead of, as previously here, and as is still the case in most places, for excelling in one subject only. For instance, students of the first or second year, may contend in the Third Division, for Prizes and Certificates for Proficiency in Anatomy and Chemistry, and in the Second Division, in the same way, for Proficiency in Physiology with Materia Medica and Therapeutics.

Having observed, however, that the students of the

first year, having frequently to contend against men of older standing, had not sufficient encouragement, in consequence of the difficulty of distinguishing themselves in two subjects, though well inclined and able to master one of the preliminary sciences, the Professors propose recommending to the Council that, besides the Divisional Prizes, there should be smaller Prizes in each of the two Junior Divisions, for each of the separate subjects: that is, for Anatomy, Chemistry, Physiology, and Materia Medica respectively. This, we hope, will remove all feeling of discouragement, stimulate the less energetic, and reward the worthy. We feel now, that only one thing more is required to effect all the objects in view, and that is, diligence on the part of the Pupil.

These preliminary sciences ought not only to be carefully studied, but studied at the beginning, of your Medical career; for, if not mastered then, they will never be properly studied, and all future exertions to repair the omission will, in most cases, be like the attempts to keep in use “a self-made road, which is always out of repair, and never good for much.”

However thoroughly we may study the laws of Nature, or become skilful Chemists, or make ourselves acquainted with the anatomical structure of plants and animals, or even of the human frame itself, or become profoundly versed in all the doctrines of Vegetable and Animal Physiology—however minutely we may be informed of all the remedies known to savage or civilized life, we are yet far from being qualified for Medical Practice. All these studies, though forming an appropriate

basis, are only preparatory to the ultimate end and object of the whole—that is, a study of the Principles and Practice of Medicine. This comprehends, whatever has reference to the diseases incident to man, and the modes by which they may be relieved or cured. For convenience, it is usually divided, both in teaching and in practice, into the separate branches of Medicine, Surgery, and Midwifery, as affecting internal or external parts, and the Process of Parturition, with the Diseases of Women and Children. These constitute one Science, because founded on a knowledge of the same healthy structure and functions, and the modes in which these are affected by external agents; also on the same kinds of morbid structure, and the same principles of Pathology; which, therefore, are alike interesting to the Physician, the Surgeon, or the Obstetrician. The study, therefore, will necessarily be the same for all. Medicine being founded on Principles, a part of it cannot be well understood, without a general view having been first taken of the whole. Any one, moreover, may on occasion be called upon, in isolated situations, to practise every branch of the profession, as is always the case with General Practitioners, and with those who enter the Medical Departments, of the Army and Navy, or that of the East India Company. But, as the science is too vast, to be completely embraced in all its minute details by any one individual, so it is advantageous as well for the advancement of the Science, as the practice of the Art, that individuals should, in large communities, devote themselves to particular branches of the Profession. This especially, when they

are led to them by choice ; because the manual dexterity, firmness of nerve, and cool self-possession, of one will not fail to distinguish him as a Surgeon—while nice observation, correct discrimination, and a ready application of all the means available to learning and science, will, in another, equally throw lustre, on his course as a Physician.

Having shown that all the previous studies, both accessory and medical, are valuable, as improving your powers of observation and training your mental faculties, as well as acquainting you with the structure and functions of the body in health, you are prepared to approach the practical branches of your Profession with a more just estimate, as well, of their importance, as of their difficulty. When you come to study these scientifically, you will not fail to acknowledge the aid you receive, from the previous means having been well suited to the ends in view : for, hitherto, as Dr. Watson has expressed it, you have heard only of structure and of function. Thenceforward, your themes must be of health and of disease : of health, that you may understand disease—of disease, that you may, under Providence, restore health.

The Course of Medicine, like that of Surgery, and that of Midwifery, consists of two essentially distinct parts—one the Principles, and the other the Practice. The latter is partly founded on the Principles, and partly on Experience. The principles of Medicine, though so important, as the only secure basis for rational practice, are generally ranked among the less popular subjects of study, apparently because they do not

appeal to the senses, and do not seem sufficiently practical to those, who, from imperfect education, are unable to draw legitimate deductions. It is evident, however, that this must be the fault of the objectors. Because, these principles, constituting General Pathology, consist of a collection of facts respecting disease and morbid structure, with their causes and consequences, accompanied by such explanations, as can be afforded by the state of the sciences, which treat of structure and function in a state of health. Pathology, therefore, is closely connected with Anatomy and Physiology, and, indeed, often elucidates their obscure points, because the functions and connexions of some parts, become more evident in disease than they are in health. But in general, we are able to explain symptoms and changes produced in disease, by what we have learnt of the laws of animal life in a state of health. The study, therefore, of the principles of General Pathology, forms the only proper introduction to the Pathology of particular diseases and the rational Practice of Medicine. So much is this the case, that the most distinguished Teachers now commence their lectures on the Practice of Medicine with an Introduction, treating of the Doctrines of General Pathology. Under the head of Medicine, several distinct points necessarily require consideration: as, for instance, the signs and symptoms (Semeiotics) by which diseases are characterised, as well as those which distinguish one disease from another (Diagnosis), or enable us to form a judgment of their probable course and termination (Prognosis). Or we may turn our attention to the causes of disease, and their modes of

operating on the living body (Etiology), and connect this with the means of guarding against the accession of disease (Prophylaxis). These means must often be the same as those adopted for the preservation of health (Hygiene). All these, however, form only parts of one comprehensive whole, by which we are led to Therapeutics, or the treatment for the relief or cure of disease. This may sometimes be effected by a simple avoidance of the causes of disease, by attention to the rules of Diet and of Hygiene, or by the administration of the resources of *Materia Medica*; while sometimes the most complete relief is afforded, even to an internal disease, by a surgical operation.

Surgery is so generally spoken of, as an independent object of study and of occupation, that it seems to be forgotten, that, it constitutes only one of the branches of the comprehensive science of Medicine. Like other subjects requiring manual dexterity as one of its acquirements, it has sometimes been degraded below its natural position; while at others, its importance in relation to other departments of medicine has been overestimated. It has long been the most popular branch of study in this country, and medical students, misled by the brilliant results of a successful operation, have seemed to think that they had only to acquire a minute knowledge of anatomy, with a steady and skilful hand, to become accomplished surgeons. This is, however, far from being the case. In addition to external injuries, which necessarily come under the Surgeon's care, he has also assigned to him, what are called, from some of their more prominent symptoms, *external* diseases,

but which in their causes, are quite as much *internal* ones, as most of those which are so called, and which come strictly within the province of the Physician. But as the division into *external* and *internal* diseases, is rather conventional than real, and as the Surgeon, even in the cases of operations and of accidents, has to treat inflammation and fever, derangements of the digestive functions, hectic fever, paralysis, tetanus, &c. it is evident, that he only, can be master of his profession, who has studied it as a science. He must ground his practice on minute knowledge of anatomy and accurate physiology, as well as the doctrines of general and special pathology; and be equally versed with the Physician in the preparatory sciences. As the causes and mode of progress of all diseases are of a similar nature, modifying the same organs and functions, producing the same kinds of morbid structure, and explicable by the same laws of general pathology, it is evident that all must submit to the same course of study. One or the other branch of the profession may be made an object of subsequent attention, when the greater time and attention which are devoted to particular parts will not fail to be of advantage, as well to the patient, as to the progress of science.

Midwifery, and the Diseases of Women and Children, is another advanced Course, which can only be advantageously attended, when some progress has been made in a knowledge of Anatomy and of Physiology, as well as of Pathology, and the practice of Medicine and Surgery. For on all these, has the practitioner to rely in different cases, or in the same case at different periods

of its progress, as he has in most, to attend to the health of his patient, both previous and subsequent to labour; he has also to give his aid during that process, which though simple enough in ordinary cases, yet in others may require as much steadiness of hand, and firmness of purpose, as the most delicate and difficult of Surgical operations. There is no department, therefore, in which those acquirements are more necessary, nor any where they require for their exercise, so much of amenity and of discretion.

A still more complicated branch of your studies, is Forensic Medicine, as it is connected with every department, and requires knowledge of both healthy and diseased structure. Here you have not only to form and give your opinion on all the kinds of cases, which may belong to the province of the Physician, the Surgeon, and the Accoucheur, but in cases where every thing that might assist your judgment, is usually concealed or perverted. Your opinions and testimony respecting the effects produced by the hand of the murderer, or the secret effects of poison, will also be questioned. The various ways in which physical agents, or the modes of life, may affect the health of the community, will require moreover all your nicety of observation, correctness of discrimination, and cool and collected judgment. Hence all your medical knowledge, will be required for the first institution, or the support, of the laws of your country.

The descriptions of disease, the nature and meaning of symptoms, as well as the principles of Pathology, can alone be learned in the lecture-room, and studied

in the closet. But the practice of medicine, like the practice of surgery, and that of midwifery, and indeed “like every other practical art, is to be learned only by repeated exercise, by carrying its various acts into direct effect, again and again, or, if they happen to require no manual dexterity, by looking on and seeing them practised again and again.” Thus it is only in the chamber of sickness, or the wards of the hospital, that the practice of your profession can be learned.

General Pathology is the most fitting foundation for practice, because principles, are applicable to all cases in every variety of situation ; but in practice you learn both the necessity for, and the method of, modifying your views and your acts according to the peculiarity of each case. In the Hospital, you enjoy the inestimable advantage of seeing put in practice, the rules which you have heard inculcated in the lecture-room ; and there you will find the same system adopted, which I hope you will have learned the value of here, that is, Science combined with Practice. There, however, the order is reversed. In the College the principles of a science are first expounded, and you are afterwards led in the Dissecting-room, the Laboratory, and the Field Excursion, to practise what you have learned. But in the Hospital you see your Professors first practising, and then explaining in their Clinical lectures, the reasons for their practice. Without this explanation you will frequently be at a loss for the modifications you may see introduced, and may fancy you observe timidity, vacillation, or even contradiction to something you have before learned. But you will only be witnessing, what

you will afterwards have yourselves to do, as you must above all, avoid falling into the sin of becoming mere routine practitioners. For seldom will you find the general description of disease, entirely applicable to each individual case; you will, therefore, have frequently to modify your practice according to the idiosyncrasy of your patient.

In entering an hospital, it is necessarily an object of consideration, at what period you should commence your attendance. Some will say, that you cannot begin too soon, and others will advise you, first, to acquire some knowledge of preliminary studies. As there is so much that can only be learned by being seen, so it is evident, that you cannot begin to observe surgical cases, at least, at too early a period. But before you are acquainted with the structure and functions of the Body, and the doctrines of Pathology, it will not be easy to derive much benefit from the Clinical Lectures, on Diseases with the nature of which you are as yet unacquainted. You would then be apt to adopt a careless and superficial mode of observation, and fall into a routine method of practice. Clinical instruction, is without doubt, the most important method, in which instruction can be conveyed. In the first place, your senses are exercised in seeing the phenomena which characterise disease, and in observing the best methods of examining a patient. Many of these observations you may yourself verify. You will also have the satisfaction, of hearing the causes of many of the symptoms explained, as well as the reasons of the treatment which you have seen adopted. If with this you com-

bine the habit of taking notes of the cases in hospital ; you will find, in future times, as I myself can say of the Clinical Wards of the Edinburgh Infirmary, that some of these cases, will make a more vivid impression, than many you may meet with in after-times.

But examining patients, witnessing treatment, and taking notes of cases, are all proximate steps to practice. But without yourselves practicing, it will be difficult to acquire confidence. It has therefore been arranged that the Pupils of the College should have the opportunity of doing much of the Hospital duties, and much must be required to be done, where 12,000 in and out patients are annually received*. Hence the offices of Out and In-

* As the advantages to be derived from Hospital practice depend upon the mode rather than the number of cases which are seen, the author quotes the following pertinent observations, written in Paris, the city of great Hospitals : so the celebrated Clinical Wards of Edinburgh were famed for the selection, rather than for the number of cases. “ Voir beaucoup des malades n’est pas le meilleur moyen de apprendre à bien observer : une pratique peu étendue instruit davantage le médecin studieux. Celui qui exerce la médecine dans les hôpitaux voit beaucoup et ne voit pas assez ; la rapidité avec laquelle ses yeux passent devant des objets trop multipliés ne lui permet pas de les fixer. Comment, dans l’espace d’une heure ou deux, examiner toutes les circonstances relatives à l’histoire de la maladie de cent ou cent cinquante individus ? Comment changer ses méthodes suivant les indications ? Comment dans un temps si court, l’esprit peut-il réfléchir sur ce qu’il a vu, remonter des phénomènes à leurs causes et tout approfondir ? Il faut beaucoup de talent, je dirai presque il faut du génie, pour se garder de la routine, en pratiquant le médecine dans un grand hopital ? Un médecin ne peut hasarder un médicament, sans être engagé à l’administrer par les lois de la plus exacte analogie ; pour bien observer, il faut

Patient Dressers and of House Surgeon, also those of Out and In-Patient Clinical Clerks and the Physician's Assistant, are open, without fee, to the competition of the matriculated Students of the College, who are Pupils of the Hospital. . Of these the most proficient candidates are elected by examination—the Out-Patient Dressers and Clerks, after having witnessed six months' practice, and those for the In-Patients, after having served the former offices for an equal period. They show their competency, in addition to having passed the examination, by making clinical reports of one or more cases in Hospital. The House Surgeon and Physician's Assistant, are in the same way, elected for their proficiency, from among those who have served the above offices : but the former must also be a Member of the College of Surgeons, and the latter be qualified by some diploma to practise Medicine. By such a course of scientific and practical education, you cannot fail to acquire a knowledge of your Profession, such as will enable you to enter on practice on your own account, or what is preferable, commence as Assistants to some experienced Practitioner, where you will be able

interroger la nature avec patience, et considérer tout le cours d'une maladie avec une attention profonde. La réunion de ces conditions donne seule la véritable expérience, que l'on a définie, l'habileté à garantir le corps humain des maladies auxquelles il est expose, et à guérir ces maladies lorsqu'elles se sont développées. Un médecin qui n'est pas doué de l'organisation heureuse et de l'esprit réfléchi qui demande l'art d'observer, peut voir beaucoup de malades et manquer entièrement d'expérience.”—*Dict. des Sc. Méd.* tome xxxi. p. 291.

to prolong the practical parts of your education, and be able to acquire the requisite degree of experience and of confidence.

I have already mentioned, that, having thought it desirable in awarding Prizes, to induce Students to study two or more subjects together, instead of one only, the Professors had divided the several objects of Medical study into several divisions. I have only now to mention that in our first division, Prizes are awarded to Students of the third or fourth year, who are examined, on three separate days, for proficiency in Medicine, Surgery, and Midwifery. But our Medical Scholar must be a matriculated Student, and must have attended the Medical Classes, during three or not exceeding four consecutive Winter Sessions, and must prove himself a proficient in Anatomy, Physiology, Chemistry, Materia Medica, Medical and Surgical Pathology and Practice, Midwifery, and Forensic Medicine.

Though the studies of the College and the occupations of the Hospital have been spoken of separately, it is of course understood that they are in a great measure carried on simultaneously. It is only after attendance, generally upon two courses of Lectures on a practical subject, and after two to three years of Hospital attendance, that the Student is admitted to examination by the Society of Apothecaries, and to the Bachelor of Medicine Examination at the University of London. The Medical Departments of the Army and Navy, as well as the East-India Company, subject those entering their respective services, to further examinations on the same subjects, or to examinations on such subjects

as may have been omitted by the College before which Candidates may have already been examined. The examination for Doctor of Medicine, at the University of London, does not take place until after two years' attendance on Clinical or Practical Medicine, after having obtained the degree of Bachelor of Medicine. This examination includes the Elements of Intellectual Philosophy, Logic and Moral Philosophy, with everything understood by the comprehensive term of Medicine.

Having taken a survey, however imperfect, of the sciences which form the basis of Medical, as well as of the several branches of this extensive study, we are better able to compare the extent of its requirements with the objects of Education in general. It will readily be admitted that a full course of Medical Studies forms a large proportion of the whole of the objects of Education.

In this very proportion, therefore, lies the necessity of improved general education, from the difficulty of acquiring a competent knowledge, of all that is requisite in Medicine, in a short time. The difficulty is still greater if you proceed to practise what you have learnt; for on the very first occasion that you act on your own responsibility, you may require all the cunning of the practised hand, with quickness of eye and prompt decision. These are the result of experience, and must therefore often be assumed. They can be assumed with confidence only, from a just reliance on yourselves, consequent upon having prepared yourselves both by theory and practice for the practical exercise of your responsible Profession.

For the touch to be delicate, and the eye and ear quick enough to discriminate, between nearly similar appearances and complicated sounds, they must be duly exercised. For the mind to observe with accuracy, to distinguish what is essential to one, from what is common to many complaints, to draw a correct inference, and apply the appropriate remedy, and all at the moment that it is required, and this without exciting alarm in the mind of your patient or of his friends, will in time become a habit, and as such, easy and familiar; but certainly, cannot at first be exercised without good intellectual and moral training. If you consider the nature of the duties, and the extent of the responsibility, which may any day fall upon you, you will resolve, with the quick expression of youthful feelings, to lose no time and let slip no opportunity, of qualifying yourselves properly for your responsible profession. But when you resolve, you must take care to remember, that to-day the opportunity may be within your reach, and to-morrow beyond your grasp. For you may at the first outset of life, be called upon to decide, in a few moments, even in the sick room, and in the presence of those most deeply interested, upon the measures, which as far as we can see, seem to limit or extend the life of an individual, as important to the domestic circle, as that of an experienced Statesman or General to the Government which he serves. All this you may have to do, not unfrequently in situations, where touch is contamination, and the air you breathe poison. You may have to reproach yourself not only with ill success in such a case, but also live bitterly to feel,

that your want of professional success, has been the natural result of your early neglect of duty.

Again, if you should be admitted into the public service, as for instance, in the army or navy of your country, you may in your very earliest career, be called upon to exercise your professional skill, in the midst of the din and the shouts of battle. There distracted by the groans of the dying and the entreaties of the wounded (and where you may any moment be placed in the situation of one or the other), you will have to preserve your countenance unmoved, and if possible your mind unruffled, when, not forgetting kindness, you have, with unwavering hand, literally to bring your knowledge to your fingers' ends. If such should ever be your situation, you will feel grateful to those who have taught you the virtue of self-possession; and will rejoice, even in the midst of strife, if you have not neglected your opportunities of professional education. You will feel also on this, as on many other occasions, that Medicine differs from most, if not all, other professions, in success depending, in a great measure not only on the skill, but also the promptness, with which we can safely rely on our individual exertions. This perhaps, produces much of that isolation of the Medical character which seems to distinguish it from that of other professional men.

The highest moral qualities may be possessed by those devoid of Intellectual culture, but I hope that it has been made clear, that it is only by a proper combination of the two, that we can be qualified for all the duties of our Profession. The different branches

of study having been enumerated, we may yet consider, though this seems hardly necessary, whether they are to be studied only as parts of an empirical, sometimes distinguished by the name of a practical, art, or as branches of an all-important science. If we study the history of Medicine, we shall find that improvements have been made at times, when men with cultivated minds, have obtained the lights, with which they have illumined the dark parts of their own profession, from habits of investigation pursued in other sciences. The great advances which in recent times, have taken place in Medicine, have in like manner proceeded from the adoption of similar methods. For instance, from suggestions arising from the increased and improved use of the Microscope; from the adoption of the Stethoscope, and from the application of the numerical method in classifying and weighing well ascertained facts. Likewise from our improved knowledge of Animal Chemistry, and the great advances made in General and Special Physiology, as well as from the scientific course now pursued in the study of Pathology. So the rigorous methods now applied to the investigation of Medical questions, and the great improvements which are every day making in the Natural Sciences, will continue to improve the Science of Medicine.

The World now requires, and Public Bodies insist upon, a greater amount of acquirement than formerly. If you should feel inclined to complain of the quantity now to be learnt, you must not forget to observe, how difficulties have been removed, how Museums are now furnished, and lectures illustrated, and that the facili-

ties for study have increased, at least in an equal ratio, to the quantity to be studied.

Formerly it was hardly possible to obtain a good Medical Education, even within the precincts of this great metropolis, notwithstanding that it abounded then, as now, with magnificent hospitals. What was obtainable, moreover, was not recognized at old Universities. For what were called Schools, were formed by some Star not always of the first magnitude, placing his own subject as the prominent centre, round which were to revolve satellites, often of so unsubstantial a nature, as to be unable to shine, even with the aid of reflected light. I myself, after studying Botany, Chemistry, Anatomy, Physiology, and Surgery in London, felt myself obliged, like many others, to proceed to Edinburgh, for *Materia Medica*, the Theory and Practice of Medicine; and Hospital practice, with Clinical Medicine; as well as for Midwifery, and Military Surgery. But since the establishment of University College, followed by that of this College, the whole system has been changed, and the Metropolitan Schools are as complete and as perfect as any elsewhere to be found. The degrees of Bachelor and of Doctor of Medicine can be obtained in London, as well as at old established Universities.

Some of the subjects included in the Medical curriculum, may appear to you, unnecessary, as to those, “who *see* without observing, and *prescribe* without thinking.” But the information which all the Sciences afford, is not only useful in itself, but their culture forms the best training for the faculties of the mind,

especially of those, who have not had the advantage of a good general education. Medicine was not less successfully cultivated formerly, than it has been since, until very recent times. Then Science found its chief supporters among the Medical Profession, and the Royal Society, many of its original Founders. There, they can now scarcely gain admittance, unless they bring some other credentials besides their Profession. This has perhaps been caused by Physicians, (who were originally so called, because they were Naturalists,) though still proud of the name, having become ashamed of the calling. This again, has probably arisen from an undue, I had almost said, base subservience in the Profession generally, to the prejudices of a public ignorant of science. But we may observe in that public, the dawn of a growing interest in scientific pursuits, in which, without doubt, will be included, as in the times of ancient Philosophers, some knowledge of the structure and functions of the body. When the light is a little more diffused, men will not be slow to perceive, that a Profession, based as it is on so many Sciences, cannot but be Scientific itself; and that, therefore, those only who study it as a Science, are qualified to practise it successfully as an Art.

Fortified by a scientific education, and acquainted with the modes of investigation in the exact sciences, you will be enabled to investigate the causes of disease in a philosophical manner, and make your treatment a legitimate deduction from the principles of your science, modified, however, by the results of experience. You will thus avoid rashness on the one hand, and timidity

on the other, and, provided with the copious resources of the art of healing, you will feel no partiality for routine. As confinement in a small space, from want of exercising the visual powers, is apt to produce shortsightedness, so confinement of the mental faculties to one set of ideas, will infallibly produce littleness of mind. Hence, if you come to the practice of your profession without the mind well trained and stored with knowledge, you will be unable to take advantage of many cases, however well they may be calculated to illustrate obscure points of Physiology and of Pathology, as well as of Practice, and thus indirectly to advance your professional interests.

Some, who do not, however, think it necessary, to prove the connexion between cause and effect, say, that a scientific education does not necessarily produce a good, but often a timid, practitioner. That this may have appeared to be the effect, I will not deny, but as little will I admit, that it was the scientific knowledge of his profession which caused the timidity. For it has sometimes happened, that the naturally timid, may have paused at a threshold, where the rude and ignorant have rushed in. But is it because the former have endeavoured to fortify themselves with knowledge, that they have become timid, or is it not rather, because the knowledge has not been sufficient, or not sufficiently conjoined with practice. The science, therefore, which taught them to avoid a difficulty, was not sufficient to overcome their natural diffidence. In other cases, it can only be the timidity of the skilful pilot, who has to carry a richly-freighted vessel through a narrow

channel, with breakers on one side, and shallows on the other. When such a one finds that a quick eye and steady hand, with his magnet to direct, and his plummet to investigate, are useless, and states that he has found his barometer faithless, and a knowledge of the heavens and of his charts, of no value, *then* only, will I consent even to consider the question. In the mean time, I would rather myself, trust to such hands, than be at the mercy of those who might by accident, pass more quickly through a difficulty, but with the chances much greater of being dashed on the breakers, or left to die on a sand-bank.

Reason and experience, however, both combine in assuring us, that, that which is our duty, it is also our interest to do. Therefore, qualify yourselves for the duties of your profession, in the most perfect manner in your power. Found your practice on a basis of science; and success will be sure to follow, if you take the ordinary pains to insure it. And this, notwithstanding the cavillings of those, who may point to success being achieved without science; as well as to a scientific knowledge of the profession, not being always followed by success. This you may hear, sometimes, ascribed to the uncertainty of Medicine, where the same things will produce such different effects. But it might as well be objected to Music or to a Musical instrument, that the same hand will produce a jar, or a melodious note. Others again will point to the success of those, who as devoid of principle as of science, are yet looked upon by the public as oracles of the Medical Art. This is no doubt true, and would be no less marvellous than true,

were we not aware of the gross ignorance of the public, in all matters of a scientific nature. Hence we observe, that the very same men, who would be astonished at a crier mending a clock, and are so at people descanting about painting and sculpture, who have never paid attention to art, yet think it nothing extraordinary that a charlatan should, without knowledge or examination, be able to apply his nostrum to repair the various ills, of the most complicated and perfect machinery of a Divine Architect. This is, in fact, owing to their knowing, or supposing that they know, something of the one, and do actually know nothing of the Sciences connected with the other. But this, like many other defects of reasoning, will be remedied with the improvement of general education, and with the public attention being turned to the nature of the duties and studies of the scientific practitioner of Medicine.

Having alluded to the public interest which has been excited respecting the Profession, this might appear a favourable opportunity, for making some observations on the plans which have been proposed for its benefit. But it is not advisable, on the present occasion, to enter upon questions affecting so many interests, some of them of a political nature, and respecting which diversities of opinion are entertained. But we may, without overstepping the limits of discretion, discuss any changes proposed in the education of the profession, as this is closely connected with our subject. We have already observed, that every one entering the profession, must, to a certain extent, have the same preliminary and professional education, and afterwards pay more

particular attention to the branch of the profession which he intends more especially to practise.

As much time is necessarily lost, and little of professional knowledge really acquired, it is extremely desirable, that the whole system of apprenticeships should be abolished. Then only, will sufficient time be at command for increased, and necessarily improved, general education. As far as pharmaceutical information is concerned, a few months would be ample, after some preliminary information had been acquired; and for the opportunities of seeing practice, much less time, subsequent to completing a scientific and practical education, would suffice to learn much more, than by the present plan, where, though much may be seen, little is observed. But when so much is relaxed, the opportunity should not be lost, of requiring as an equivalent, that those purposing to enter any Medical School, should prove that their time has been well spent; as in acquiring some knowledge of the sciences bearing upon professional studies. The Course of Study to be inculcated by the Council of Health and of Education, has not yet been made public, but it will no doubt be such, as is suited to the present state of the sciences, and of the Profession. But from the number of subjects to be learned, and from their nature, it is evident that the Medical sciences can only be efficiently taught, where ample materials for illustration are collected, with the necessary establishments, and a competent body of teachers. The subjects to be learnt being the same, and for the majority to the same extent, as much uniformity of system as is practicable should be adopted, and this

appears to be one of the objects intended. With this should be combined, a course of examinations calculated to test fully, the competence of the candidates in the different branches of Science. This can only be done effectually, by Examiners being appointed on account of their competent knowledge of the different Medical Sciences.

Where a full scientific and practical education is afforded, and the prescribed examinations creditably passed, there all the honours of the Profession ought to be obtainable, and its privileges enjoyed. And if it should not seem desirable, to subject all to the same high test of qualification, the higher honours ought to be obtainable at a subsequent period; by passing through a prescribed course of study, by examination, or by a sufficiently long practice.

But having submitted to a laborious and expensive education, and proved themselves qualified for practice, by passing through the prescribed course and examinations, justice, both to the public and to the profession, requires, that those who have so proved themselves, should be protected in the exercise of that profession. Protected from the ruthless interference of those, who, unwilling to undergo the labour, and too ignorant to pass the required examinations, yet presume to practise, what they have shown themselves incompetent to study. Ignorance is always ready to enter upon a course from which even a little knowledge would shrink.

Any increase of facility for entering a profession like Medicine, would be lamentably detrimental, not more to the members of that profession, than to the

public generally, who would rapidly suffer from the numbers of incompetent persons who would immediately, and without study, enter upon what, to them, would appear a lucrative profession. The education of the public has been far too much neglected, for them to judge correctly between those who know, and those who only pretend to knowledge of a profession based on physical science.

There is nothing unusual, nor unreasonable, in those who have not proved their competency in the first instance, not being admitted to practise a profession upon which the lives of the community depend. We find the principle carried out in the case of pilots, and of officers of the navy; also in the scientific branches of the army; and even where only property is concerned, as in members of the legal profession. When the Government is interested in the revenue, we find that even the venders of exciseable articles must be licensed. Any laxity in admission of any of the above classes, would immediately be followed by injuries of so palpable a nature, as would call loudly for redress. In the Medical Profession, though less obvious, from the obscurity of causes, the injury would not only be fatal, but would go on increasing. For the penuriousness of Age would come to think expenses unnecessary, which were not insisted upon; and Youth would refuse the labour, and squander away the means supplied for the purposes of study, when knowledge appeared to be less appreciated, as previously existing impediments to practise had been removed. Thus the profession would by degrees become deteriorated for the public in general,

though the higher branches might continue to be successfully cultivated both scientifically and as an art.

In conclusion, I may revert to the advantages possessed by this College, for carrying out the different parts of general and professional education. Though one of the Institutions called into existence by the exigencies of modern times, we are far from undervaluing old things. Having adopted as much as was suitable of the systems of old established Universities, nearly the same course of education is followed in the Classical and Mathematical departments as at Oxford and Cambridge ; and with no unworthy success, if we may judge by the high standing of many of our Alumni at those ancient seats of learning. Though we have no ancestry to look back upon, we show our reverence for the acts of those who established these famed abodes of learning, by imitating their example, and doing as they did, when they suited their measures to the times in which they lived, for the effectual establishment of learning in a land of ignorance. Thus may others hope to be referred to in after times, and to become an example even in their own days. The Founders of King's College, in making Religion and Moral Discipline the bases of the Institution, have taken care also to open wide the portals to literature and to science. Thus we see a School and a College, Ancient and Modern languages, Mathematical and Physical Science, Natural History, and a Medical Department, flourishing under the same roof, along with a School of Engineering, Architecture and the Arts ; attention also being paid to the ordinary accomplishments.

The Medical Department, as is well known, has been formed, in a great measure, on the model of old established Institutions, with improvements suited to our own times. On these peculiarities and advantages I have already sufficiently dilated. There is only one point remaining, upon which doubts used to be expressed; not doubts respecting the *propriety*, but with regard to the *policy*, of expecting Medical Students, when they first leave the parental roof, to continue to pay some attention to their religious duties, and be subjected to some moral discipline. What was right in principle, could never be wrong in practice, and therefore, what was established, has been persevered in, because tending to improve the tone of Medical education. We have suffered as others who have introduced innovations, that is, we were first abused, and then tolerated. But, being rewarded by success, we are imitated by those who might themselves have set us the example. But I do not require to look beyond these walls for confirmations of our course, for the unanimity of Professors is as conspicuous as the Gentlemanly deportment of the Pupils. As remarked by my Predecessors* in this office, not the least gratifying circumstance is the growing influence which the system, first adopted and carried out with respect to Medical instruction in this

* "I do not, therefore, say too much, when I declare that the institution of the Medical Department of King's College, has answered the design of its founders; it has not only attracted a considerable number of Students, but it has given a tone and a character to medical education generally, which it has not hitherto possessed."—Dr. Todd's *Address*, 1843.

College, is having on the Profession, and on some other Medical Schools, both in London and in the provinces.

Since the establishment of the Collegiate System, in 1834, when rooms were opened for the residence of a limited number of Students, as well as a Dining Hall, and the introduction of a salutary discipline, with increasing means and effective methods of general and professional education, our numbers have gone on steadily increasing, even while the number of Students resorting to London has, for various reasons, been diminishing. "The increase has occurred chiefly among the Matriculated Students, or those who take the whole of their medical education at this College, and to whom our plan of discipline chiefly applies*."

I may mention, moreover, that the Prizes, founded by the munificent friends of the College, Dr. Warneford and the late Mr. Leathes, for attendance on the Divinity Lectures and Knowledge of the Scriptures, and of BUTLER'S *Analogy*, have always been gained by Students, who have also distinguished themselves for their medical proficiency both here and elsewhere. As proofs, I may mention the names of Miller, Dodd, Inman, Parsey, Johnson, Hensley, Jemmett, and Brinton.

Therefore, though we respect and adopt what is old—far from neglecting, we cherish what is new. Thus, besides training the mind, and fitting it for the course it has to pursue, ingenuity is turned to practical purposes, and originality finds employment in extending the bounds of Science. As instances, I may cite the

* Professor Partridge's Address, 1844.

establishment of the Engineers' Workshop, and the formation in it of a Working Model of a Steam Engine, which you may now see in the Museum. So, if you wish for an invention which shall give permanence of action to the most mobile of powers, you have, in the Galvanic Battery of Professor Daniell, an instrument which has much advanced Science, and has been the source of great improvement in the Arts, and which may, at any time, prove a valuable defence to our shores. So, also, in the Electric Telegraph of Professor Wheatstone, you have the means of conveying intelligence with almost the rapidity of thought, from one part of the country to another, and even to distant parts of the world.

I refrain, for obvious reasons, from alluding more particularly to my Medical Colleagues, though they are known beyond their Lecture-rooms; but it may be permitted me to allude to the works of one, who, though once of us, is not now among us. If you enquire where Modern Physiology and Scientific Pathology are made the basis of sound and successful Practice, and the results of extended experience conveyed in language as remarkable for its clearness as its beauty, I need hardly add, that the voice of the Profession will proclaim the Lectures on the Practice of Physic, delivered from this place, by our late distinguished Professor of Medicine, Dr. Watson. Having expressed the same sentiments to the Author before these Lectures were incorporated in their present form, I have less hesitation in doing so on the present occasion, though he has since, much to the gratification of his

late colleagues, been elected into the Council of the College.

Though, as I have said, we have no long ancestry to look back upon, we are in the scarcely less proud position of being progenitors, I hope, to a long and worthy posterity, who, if we do our duty towards them, will repay us, as we repay those to whom we are indebted for bright names and worthy example. If I may augur of the future from what has already occurred, I feel assured we shall have no unworthy progeny—for some, whom I have known here as pupils, I now see around me in the responsible office of Teachers. But, as this alone would not suffice to fix their positions in the world, we may look among the advancers of the Sciences of the day, and among the authors of Papers in the *Philosophical Transactions of the Royal Society*, we shall find the names of Bowman, of Miller, and of Simon.

Having such examples to refer to, I cannot conclude better than by inviting you to follow in their steps; and this I can do with confidence, for here, on a foundation of Religion and of Morals, you may construct a basement of Literature and of Science, and on these raise a Professional superstructure, which will be as creditable to yourselves as beneficial to the public. Thus you will be well qualified to practise the Profession of which it has been said, “Homines ad deos nullâ re propius accedunt quam salutem hominibus dando.”



LONDON :
HARRISON AND CO., PRINTERS,
ST. MARTIN'S LANE.

