An essay on the education and duties of the general practitioner in medicine and surgery / [Thomas Alcock].

from his friend and former pupil
the Author

AN ESSAY

ON THE

EDUCATION AND DUTIES

OF THE

General Practitioner in Medicine and Surgery;

CONTAINING

Suggestions relating to the Investigation of Disease, and the Registration of practical Results.

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THE object of this paper is to increase the usefulness and respectability of the general practitioner.

To discuss comprehensively the means by which so desirable an end may be attained, would occupy a wide field for inquiry and research, embracing the whole range of medical and surgical education; for, as the investigation of disease forms the very groundwork of rational practice, so does the power of ascertaining the deviations from health almost wholly depend on the previous education.

Few subjects perhaps form so interesting a part of philosophical research, or are so important in their influence on the well-being and happiness of individuals and society, as education. Much indeed has been effected towards its improvement; yet, from the great diversity of opinion which prevails, it may be doubted whether the principles on which it ought to

be conducted are sufficiently understood to produce the full measure of benefit which might result from a rational and well-directed system of education, adapted to the age, acquirements, and future pursuits of the individuals.

It would be foreign to the object of this essay to enter at large on the subject of education; and yet the power of investigating disease depends so essentially on the previous degree of mental culture, that to expect that any plan, requiring in its exercise a high degree of intellectual power, should be efficient without reference to the means by which that power may be attained, would not be less absurd than for the husbandman to expect that good seed should yield abundant produce, without previous cultivation of the soil.

To extend this homely comparison. It is well known, that land of moderate quality, by judicious cultivation, is more productive than the richest land without the assistance of art. In like manner it is not improbable to suppose, nor perhaps impracticable to demonstrate, that the acquired powers of the mind, which result from judicious culture, are of more value in the every-day concerns of life than the greatest distinctions which nature usually confers on individuals of the same species. It is not intended to compare the incapacity of the idiot with that perfect organization which is fitted for the highest degree of intellect, but to speak of mankind in general, and of those free from the hopelessness of actual incapacity.

It requires but a very limited knowledge of the biography of eminent men to be able to trace, in many instances, the foundation of their future greatness to circumstances, sometimes accidental, at others prepared for them, in early life, so as to call forth so much zeal, perseverance, and ambition, that all difficulties which were in their nature surmountable, were generally surmounted; whilst every success obtained improved these qualifications, and added confidence in all subsequent undertakings.

It is not an uncommon error for parents to remain indeterminate regarding the choice of a profession or mode of life for

their children: the choice is frequently left to the children themselves, who cannot be supposed to possess the necessary experience to enable them to determine what is really best; they, therefore, often select a profession from some showy and unimportant appendage to it, and never think of the evils inseparable from their choice, until it is too late to benefit by the knowledge. Were parents to determine this point for their children early in life, the mind might, by due care and cultivation, be adapted to the pursuit, so as to ensure a higher degree of excellence than is usually attained.

I am aware that some may not be disposed to concur in this view; although, as far as my observation and experience have extended, I am inclined to agree with those philanthropists who believe that "the character is formed for, rather than by, the individual." In early life the taste for particular pursuits may be easily formed, and the proneness of children to imitation furnishes the most certain mean of effecting the desired object.

Although I am persuaded that the study of education, as a science, would well repay the labour of parents anxious for the welfare of their offspring, my present intention is merely to trace the manner in which those qualifications of mind the best fitted for the medical profession may be attained. It may easily be conceived that the bias of mind required for the military commander, and for the medical practitioner, should be very different: in the former it is sometimes a professional duty to destroy thousands of fellow-creatures, without a single effort of reason exercised on the command received: in the latter it is honourable to save the life, even of the most helpless or insignificant of human beings: and the highest reward of an approving mind is often found in the consciousness of having been the humble instrument of averting or lessening the sufferings of humanity by improvements in the healing art.

Every one is aware that the strength of the body may be almost incalculably augmented by judicious training and exercise. Can it be doubted that the mind is equally capable of

having its powers called forth and improved? Should any one entertain such a doubt, he would do well to contrast the untutored savage with the man who has received the benefits of a liberal and scientific education; or to consider what the greatest luminaries of preceding ages would have been without such advantages.

Few, at the present time, are disposed to doubt that the impressions made on our external organs of sense by outward objects, or, in other words, that both our sensations and perceptions, may be improved in accuracy, by attention and habit. The artisan, habituated to close inspection, sees the objects of his attention with a degree of accuracy which may well astonish the casual observer: the pilot or the seaman points out distinctions between vessels, faintly perceptible on the distant horizon, the accuracy of which is verified by nearer approach, when to the observer whose eye has not been cultivated to distinguish remote objects, the vessels themselves are scarcely visible, or at best appear as faint and undistinguishable spots.

Another example may be taken from that well-known piece of mechanism—a watch*.

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* "How much the perceptions of the same object vary in different individuals, may be understood from a simple instance. Suppose a watch to be subjected to the observation of three persons, whose organs of sense are alike healthy and vigorous; the one a very ignorant person, totally unacquainted with its purposes and movements; the second a well-informed person, not however possessed of any acquaintance with the particular mechanism; the third an artist, minutely and completely acquainted with it: the sensation may be precisely the same in all instances; the picture upon the retina may convey to the mind an equally impressive notice of the object; but how different the perceptions! The first sees a number of minute objects, which attract his attention perhaps by their beauty and regularity; but nothing more: he has no idea of their subserviency to each other, nor of their general use; there is little more in his case than sensation, indeed we may say, nothing more than sensation, besides those associated perceptions which so soon become connected with every impression from external objects, and

To adduce a further example, let us instance a case of disease, say inflammation of the bowels. The common observer sees nothing more than the extreme helplessness of the patient and his deathlike countenance, and, without knowing why, believes that dissolution is not far distant. A person who has received a medical education, but whose mind has not been prepared to receive all the impressions which the indications of disease afford, seizes perhaps one solitary and accidental symptom; he finds the patient has not passed urine during a considerable lapse of time, and he immediately concludes, that the case is one of *suppression* of urine, meaning, if his expression had been adapted with accuracy, *obstruction* of urine; as he proves by the attempt to introduce bougies and catheters to relieve the bladder: by a very common error the instruments are too small, and hitch in a fold of the urethra, so that they do not reach the bladder. The disease gaining ground, after various useless medicaments, the determination is made, to puncture the bladder. A friend is called to sanction the operation, whose eye is accustomed to search more deeply into

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to which we have already referred. The second, from his general knowledge of mechanism, has some ideas excited by the sensation, of use and connexion, but he cannot discern the specific kind of connexion, nor how each part tends to answer the end of the whole. If he sets about to study the mechanism, he subjects each part to minute examination in its structure and connexions; and by degrees may acquire an acquaintance with the whole, which, on a subsequent inspection, would give him an immediate distinct perception of the parts and purposes. What he thus acquires by laborious and patient examination, the third saw at once. His perceptions have long been cultivated by daily attention to the movements and their dependences, by studying their defects and excellencies, by the actual formation of various parts, and the construction of the whole; and a great number of ideas produced by such observations and operations, become so intimately united with the sensation, that at last this at once excites them, and thus he sees (or, more correctly, perceives) what lies totally out of the reach of the observation of others."—*Intellectual Education, Rees's Cyclopædia.*

the expression of disease, and who instantly traces by the raised knees, the tossing of the arms, the inability to sustain pressure on the abdomen, the feeble threadlike pulse, that inflammation of the bowels is far advanced, whilst the hippocratic countenance of the patient, in combination with the other signs, assures him that the time for the use of remedial means is past. There being no distention of the bladder, the intended operation is prevented; the patient sinks: and dissection confirms the accuracy of investigation, which came too late to be of service.

The above are not imaginary pictures, but drawn from actual observation; and were it desirable to dwell on such painful and humiliating retrospects, numerous instances might be adduced, both from medical and surgical practice*, in which remediable disease was allowed to run on to a fatal termination, by the want of early discrimination, and that efficient treatment which, as mere matter of induction, must have followed, had the nature of the disease been clearly ascertained and understood†.

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* A young and otherways healthy man, who laboured under a slight indisposition, was afflicted with pains, vomitings, and obstinate costiveness. A swelling was observed at the upper part of the scrotum, which was considered and treated by his medical attendant as *hernia humoralis*. The patient died on the third or fourth day. Investigation after death was permitted, to unravel the unexplained cause of death. A friend was invited to be present, who on examining the swelling, and inquiring the history of the case, observed, "I fear a fatal error has been committed in this unfortunate case: this swelling is not *hernia humoralis*, but is *hernia of the intestine;* probably also a portion of omentum may be contained in the sac."

The dissection fully verified this opinion; a portion of strangulated intestine in a state approaching to gangrene, enveloped in omentum, was contained in the sac. The intestines above the hernia were inflamed and distended, as usual when death is produced by strangulation of a portion of intestine.

† How many instances of acute disease, particularly of children, such as croup, hooping cough, inflammations of the lungs or bowels,

I must pass lightly over the preparatory education of the youth intended for the medical profession, observing, that as his future usefulness will greatly depend on the early habits which he may acquire, his studies and even his amusements should be calculated to improve his powers of observation, of reasoning, and of patient and persevering exertion. He should be accustomed to use his hands as well as his head. In addition to the ordinary routine of school education, which should comprise grammar, English and Latin (and Greek, if time permit), arithmetic, geometry, drawing, &c. every subject of instruction should be perfectly understood by the pupil as far as he has advanced. The writing of a good current hand, accurately and expeditiously, cannot be too sedulously attended to, as indistinctness of character in writing, either in prescribing or in writing directions, may lead to dangerous or even fatal error. The cultivation of a small garden is well calculated to promote industry, patience, and observation; for the preparing of the ground is a necessary preliminary to sowing the seed; and the seed, when sown, does not appear to germinate till after a period more or less remote; whilst the daily attention which various plants require, brings to notice many of the phenomena of vegetation which might otherwise escape

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&c. have occurred, in which lives have been thus untimely sacrificed by mercenary venders of drugs who had never received the rudiments of a medical education, need not be particularized, since they are so frequent in London as to be of almost daily occurrence. A child labours under croup, and the cough being the most obvious symptom, the child is pronounced to have "taken cold;" and probably without even seeing the patient, emulsions, and perhaps, in addition, a useless farrago of powders, &c. are furnished, which the vendor may suppose, "can do no harm." Fatal error! "*Occidit qui non servat.*" They may not, indeed, be poisonous, but "he destroys who does not save;" and in such cases, the life of the patient is as certainly sacrificed by allowing the disease to proceed, as if poison were administered. The disease increases (as might be anticipated by any one aware of its real nature); and when there is no hope of recovery, the parent is requested to call in "further advice!"

notice. The arranging of mineralogical specimens may also serve to promote accuracy of observation. An intercourse with the more simple and useful arts and manufactures will also greatly assist in improving the powers of observation of the young pupil. Occasional exercises in mechanics, in making experiments or models, and in describing accurately the natural or artificial productions which he has observed, will prove useful. But it must be obvious, that however desirable it may be to promote intellectual improvement, yet to form the character of the individual to virtuous habits, to self-control, to unwearied beneficence to others, is an object of still higher importance. The character of Alexander must give way to that of a Howard, who may be pointed to as an example worthy of imitation.

Arrived at that age when school discipline usually terminates, a profession is chosen by the youth or his parents: the youth, perhaps, has observed that Dr. —— rides in a fine carriage, and receives a guinea for talking five minutes to a patient; and that Mr. —— keeps his carriage, and that his young men have little to do, and have fine sport when Mr. —— is out of the way, &c. &c. A prudent parent would represent to his son, that if with such views he entered into the medical profession, he would find himself grievously disappointed: that the only principle by which he could deserve success as a medical man must be, to be always willing and ready to sacrifice his own personal comforts to the welfare of others, who from illness require his assistance: that the path is not strewed with flowers, but frequently rugged and irksome: that he must learn to bear confinement, to execute faithfully whatever directions relating to business may be necessary; and not unfrequently to leave his bed when most disposed to sleep, in order to attend to those urgent calls which admit of no delay. If he can make up his mind to submit cheerfully to these inconveniences, he may hope, by sedulously endeavouring to improve himself, to become an useful and esteemed member of society, and to enjoy the means of sup-

porting himself in respectability, and perhaps in affluence; but that large fortunes are seldom the lot of the honourable practitioner, who prefers the welfare of his patients to his own immediate gain.

If with these altered views the youth is still desirous of following the medical profession, a proper instructor may be selected, and the youth be permitted to make a trial, before he become an apprentice. The expenses of a medical education should be considered by parents, before a youth enter into the profession. Ardour and diligence may surmount all difficulties; but ordinary minds are seldom equal to the necessary exertion, when left without assistance.

The selection of an instructor or master for the youth is a matter of no small moment. He ought to possess good common sense, a fair share of general and scientific knowledge, and an ardent zeal for the improvement of his profession by all honourable means, one of the most certain of which is the judicious guidance of the education of those intrusted to his care as pupils. His probity should equal his zeal. He should not be too young; for early age and inexperience go hand in hand: yet, in advanced years, although there may be a larger store of experience, that zeal is past which induces the preceptor to share the studies of his pupils, and which is perhaps the most certain mode of ensuring their improvement.

Great diversity of opinion has prevailed on the value of a medical apprenticeship: some have denounced it as worse than useless, whilst others have been sensible that the time of their apprenticeships was profitably spent, although there might have been room for improvement in some respects. Perhaps both may be right. That many individuals wholly neglect the instruction of their apprentices cannot be denied; but, fortunately, there are others, who consider the education of their apprentices an important trust, and that the apprentice is as justly entitled to the advantage to be derived from that trust, as the master may be to the services of the apprentice. If the subject be investigated, I am persuaded it will generally

be found that those unfavourable to apprenticeship have directed their weapons against the *abuse* of, and not against the benefits to be derived from, apprenticeship faithfully and judiciously conducted.

The legislature having determined that no one shall be allowed to practise as an apothecary, unless he shall have served an apprenticeship of at least five years, it becomes essential to the general practitioner to comply with the law. It may not therefore be unuseful to inquire, what are the advantages to be derived from a well-conducted apprenticeship, and what may be the best mode of securing adequate improvement to the pupil.

When a youth is received on trial, previously to becoming an apprentice, it behoves the master to assure himself that the pupil is prepared to meet the inconveniences inseparable from the profession, and not to expect that all should be indulgence and gratification. Reasonable enjoyment need not be excluded; but still the readiness to sacrifice personal comfort, when the welfare of others requires it, should be clearly understood as the leading principle of conduct on the part of the pupil.

The attainments of the pupil should be carefully examined: the ready use of the pen in the mother tongue cannot be dispensed with; the extent of grammatical knowledge, English and Latin, should be ascertained; and I know of no better method than that of requiring the pupil to write from dictation, and subsequently to parse what he has written. The proficiency in arithmetic, geometry, &c. should also be examined. I would even recommend that the extent of general information possessed by the pupil should be known to his preceptor; and if the inquiry be extended to the amusements which have been most agreeable to the pupil, the teacher will have the means of confirming them, if well selected; or of substituting others of more useful tendency, if change be desirable. This closeness of inquiry will also be likely to gain the confidence of the pupil, by convincing him that his welfare is an object of solicitude; and this confidence ought to be improved by

affording every rational indulgence compatible with the duties which the pupil may be required to perform.

It is much to be regretted that school tuition is for the most part deficient in instruction as to the knowledge of things, and disdains the advantages to be derived from the intercourse with the productions of nature or art. Books,—books,—are the eternal theme, and these not always the most useful. So far from usefulness being consulted, many schools of high reputation teach only the classics, and do not even condescend to notice the mother tongue nor even writing; so that, unless by the extraneous aid of parental or private instruction, little is known by the scholar beyond a smattering of the classics, and his highest attainments are to read Virgil, Homer, &c. and to make nonsense verses. It has always appeared to me to be a great error in education to cultivate extrinsic accomplishments more than useful knowledge and soundness of judgment.

The principle of instruction also seems to be erroneous in many schools, in requiring a quantity of book learning to be passed through more than can be perfectly performed, so that to a superficial inquirer the progress should seem surprisingly great; but to one who is apt to consider nothing as learnt, that is not perfectly understood, the acquirements of such scholars must appear to be, *vox et præterea nihil.* The disadvantages resulting from such cramming are, that the time of the pupil is so entirely taken up, that however desirous parents or guardians may be that the understanding should receive some share of cultivation, it becomes impracticable to effect it, unless by absences which should ensure the degradation of the scholar who holds any honourable rank in the classes to which he belongs; as it is an equitable regulation, that after absence the pupil should commence at the lowest station of each class.

In a subsequent part of this essay I have arranged the studies on the principle of nine hours application to study being sufficient—perhaps even that is severe; but I could refer to a respectable classical academy, of more than two hundred

pupils, in which, during the summer half-year, the attendance in school has been *eight hours*, with extra confinement for the most trivial omission of tasks, whilst these tasks have occupied a diligent scholar (whose abilities had been by his former teachers considered above the common level) from three to four hours, in addition to those spent in school.

Supposing that the pupil's attainments are such as to warrant his proceeding in the trial as an apprentice, the contrast between the zest of school employment with ample competition, and the stillness of pursuit in his new situation, must not be lost sight of. His attention should be closely applied during short intervals, but should not be carried to the point of fatigue; and the work performed should be carefully examined from time to time. By degrees habits of attentive application may be established, and the employment and education of the pupil go hand in hand. The employment relating to business should by no means occupy the whole day: whatever might be found to be imperfect in his previous education should be recollected, and means be taken to fill up deficiencies*. A month is a fair time for trial. This trial should exhibit the rough as well as the smooth, that the pupil may be enabled to determine whether the occupation accord with his taste or not: if it does, he becomes an apprentice; if otherwise, a

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* A gentleman of great observation and experience, to whose criticism these remarks were submitted, suggested that it might be well to state distinctly the qualifications necessary to the youth entering upon a medical apprenticeship. The acquirements that are desirable, I believe, are already fully enumerated: but I consider the possession of virtuous principles and habits, combined with a good disposition, of higher importance than any acquirements in literature and science which a youth may have attained. A certain degree of zeal, docility, and diligence, cannot be dispensed with; but with these, directed by a judicious preceptor, any attainments in literature and science may be certainly acquired. Mere virtue without science is little above imbecility, and science without virtue is dangerous. Their union is essential to the exalted character which ought to characterize the professors of the healing art.

month is as long as he should remain in a business which he does not intend to follow.

The period of apprenticeship ought to be characterized by kind and conciliating conduct in the teacher, and by attention and diligence in the pupil, who must be able to give up pleasure for duty. No opportunity of conveying instruction should be lost, and the habit of daily examining the progress of the pupil will contribute more to his advancement than many are aware of*.

Habits of order, method, and accuracy, cannot be too early established. It ought to be a general, or rather an invariable rule, that whatever work is done be well done, whether it be much or little.

A very useful and generally a very agreeable exercise to the young pupil has been to acquire a knowledge of the names and situations of the several medicines and articles contained in the shop or dispensary. This has been effected by inducing him to renew the labels (if the labels were in writing), or, what is better, to make an index to all the articles in the shop, indicating the situation of each, by letters and figures of reference, relating to the quarters, as East, West, &c.; and to the shelf, as *a*, *b*, *c*, &c.; and the situation of the shelf by figures, as 1, 2, 3, &c. If the number of articles be small, a sheet may exhibit the whole index, and may be hung up in some convenient part of the shop; but if the articles be

* The youth brought up in habits of obedience and self-control gains an early triumph over idleness and sensuality, and forms a character for life. "That love of indulgence and ease, so common to childhood and youth, and which, when submitted to, leads on to a mere animal existence, and forms the man of pleasure, is thus counteracted and subdued, and another and a better bias is given." Self-control is the natural and necessary consequence of rational discipline, which is the very reverse of severity. By establishing habits of self-control a solid foundation is laid for happiness as well as for prosperity; and it has been well observed, "that a good mother, or a skilful master, lays the foundation of a child's prosperity by discipline, rather than by instruction."—JARROLD.

numerous, a book, alphabetically arranged, will be found more convenient. Each bottle, drawer, &c. should have a reference affixed indicating its situation. This plan is similar to that adopted in extensive libraries, without which, on a change of librarian, all would be confusion; whilst by strict order and arrangement even a stranger may be able to ascertain whether any book be in the library, and immediately to refer to its place. I cannot see any good reason why the arrangement of a dispensary should be less complete than that of a library. In addition to the above, I should recommend another list or index, arranged, not alphabetically as the former, but according to the situation of the articles kept. This and the marks affixed to the vessels, drawers, &c. will prevent accidental displacement, or enable the pupil to rectify it, if it occasionally take place.

Another exercise, which some of my pupils have found very useful in establishing the habit of accurate observation, has been to keep carefully a meteorological register, in which the temperature, atmospheric pressure, &c. &c. have been noted, twice or oftener, daily.

An ingenious pupil may, with very little assistance, be induced to make a set of the instruments required for the above purpose, viz. thermometer, barometer, and hygrometer. The principles on which these instruments are constructed should be explained to him, after which the exercise of observing and registering will afford both pleasure and improvement. It is humiliating to reflect on the want of general knowledge which is frequently observable in young men who have wasted the years of medical apprenticeship:—many of these would shrink from the slightest examination respecting the knowledge which the use of these simple but valuable instruments requires.

In compounding medicines, the practice of weighing and measuring accurately every article used, whether important or simple, must be insisted on and be established as a ha-

bit*. This, with the previous principle, that whatever is done must be well and perfectly performed, and the making of one step easy and familiar before proceeding to the next, will soon render the services of the pupil of some use, under proper superintendence: but the practice of leaving young and inexperienced pupils to compound medicines without superintendence cannot be too severely censured; even fatal mistakes have been the consequence of this unjustifiable practice.

The plan of conducting methodically the business of the dispensary should be considerately laid down by the teacher. This will greatly facilitate the performance of the necessary labour, and afford a larger portion of leisure for the studies of the pupil; but the teacher must, if he intend the plan to be of any avail, give his personal superintendence, and make frequent inspections, to be assured that his directions are steadily followed.

A few plain and obvious rules, well practised, will save a great deal of trouble both to the teacher and pupil, such as for instance,

Whatever work is done, let it be well *done.*

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* An infirm old man, who laboured under a disease of the tongue, supposed to be cancer, was directed by the surgeon of a public hospital to apply half a grain of calomel to the tongue thrice a day. For a time the case went on favourably; but suddenly excessive salivation occurred, which nearly terminated his existence. A student, who had watched the case with deep interest, inquired of the patient whether he had not exceeded the directions given respecting the use of the powder? The patient said, that he was as careful as possible, but that the quantity furnished was seldom twice alike. On further inquiry he stated, that instead of having separate powders for each time, he received it in one paper, containing a dozen doses for him to divide himself, without any written direction accompanying it. He was desired to produce what he had left; he had used several doses from the quantity served, and the remainder, when carefully weighed, was found to contain between *twenty-nine and thirty grains!*

Replace every bottle, utensil, &c. as soon as the purpose for which it was removed is answered.

Let every utensil, when returned to its proper place, be in a state of cleanliness fit for immediate use.

When drops of any important medicine form part of a prescription, *never think of dropping the liquid into the other compounds;* for, if too many drops be let fall, the mixture is rendered inaccurate, and consequently useless; but if the drops be measured into the clean vial, if any error take place, the vial can be washed out without further waste than that of the drops. It has been found that young men have knowingly sent out medicines in which the principal ingredient was inaccurate, from the cause above alluded to, rather than be at the trouble to make it over again. A fatal instance of this occurred in the practice of a respectable money-making medical man, who was too lucratively employed to afford any time for superintendence relating to the *preparing* of the medicines which he ordered. A youth, who had been a very few weeks in his dispensary, compounded a mixture containing laudanum, a dose of which was to be administered at short intervals. The effects succeeding the taking of the medicine alarmed the friends; and the practitioner was sent for during the night, stating that since taking the medicine the patient had become much worse, and earnestly entreating his immediate attendance. Without inquiry, the practitioner answered from his window, desiring the medicine to be continued, that he was sure it would relieve the patient. When the patient was visited in the morning he was dying: he had laboured under a train of symptoms which it is well known that excess of opium produces. The farce of calling in a physician was performed: and the matter was hushed by a statement being made that the patient had died of apoplexy! An intelligent student, who well knew the negligent habits which prevailed in the dispensary in which the medicine was prepared, learned from the youth who had compounded the medicine (before he was aware of the misfortune that had resulted), that he had put

about —— (so many) drops, *and a few runs;* a common expression, which denotes that the liquid ran in a stream, or that the drops fell too quickly to be counted.

Finish the medicines for one patient, fold and direct them, before you begin with any other. Who that knows much of pharmacy has not been shocked to observe a counter loaded, from one end to the other, with medicines in an unfinished state, without a single label affixed to any of them? No person who has any regard to the welfare of his patients can tolerate such a plan, which renders mistake almost inevitable. I am aware that the observance of the rule to which this remark is attached will somewhat increase the labour of compounding medicines; but who can hesitate between the danger or the safety of those whose lives and health are confided to his care?

Never send out any medicine without a proper written direction. In hospital practice, the direction should be read to the out-patients, many of whom are illiterate, and therefore require every precaution to guard them against mistake. Within hospitals, nurses cannot be too careful*.

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* A fatal instance of poisoning by mistake was stated, in the report of a Coroner's Inquest, in the Times of Nov. 5, 1822. The unfortunate female was a patient in the Lock Hospital.

The night nurse, it seems, had administered to the patient three table spoonfuls of a mixture contained in a bottle which stood in the window next to the bed in which the deceased lay. She did not look at the bottle before she poured out the medicine; although she stated that all the boxes and bottles containing medicines were labelled.

"Mr. William Cowell, the house surgeon of the Lock Hospital, deposed, that the deceased entered the hospital on Thursday, the 24th of October. She was ordered to take every four hours a pill, which consisted entirely of opium; and a bottle of lotion, consisting of a solution of opium, was given to her for her sores. On Tuesday night she was ordered to take the pill every si t hours, and to continue to use the lotion. About ten o'clock on Wednesday morning he saw the deceased, who then complained of violent head-

Never guess the quantities of medicines, however simple they may appear; but do your duty faithfully by weighing and measuring whatever is ordered in determinate quantity.

Many other rules will suggest themselves, but these may serve as a specimen.

They who expect their pupils to retain and practise *general directions* (the reasons for which they may not at the time be able fully to comprehend), from merely being told that they must do so and so, deceive themselves. A young man of good disposition performs willingly whatever may be *immediately* directed; but it is far otherwise with general directions, the occasions for which occur at distant or uncertain intervals. The best disposed youth often fails, not through unwillingness, but from defect in memory; or, perhaps, from the habit of procrastination, from which seniors, as well as juniors, are not at all times perfectly exempt.—The only effectual plan that I know of is, to continue a strict and methodical superintendence, until practice render the task easy, and until frequency of repetition have reduced its performance to a settled habit.

The knowledge of materia medica may be acquired at a very easy rate, by learning the character and description of

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ache, and of her bowels being confined. He had no suspicion of any thing extraordinary having happened, but he ordered her to discontinue the pills, and to take a dose of castor oil. About twelve o'clock he was sent for, and found the deceased quite insensible. He thought she was in an apoplectic fit, and treated her accordingly. He bled her, but she continued in the same state until between six and seven o'clock the same evening, when she died. He first learned that the deceased had taken the lotion inwardly about two o'clock, when the night nurse came down and told him so. The quantity she had taken contained ten grains of opium, which was in his opinion sufficient to cause death. He opened the body, and found in the bowels a quantity of baneful fluid.

" After deliberating about three quarters of an hour, the Jury returned a verdict—' Died in consequence of taking a solution of opium, administered to her by Anne Mortimer, a nurse in the hospital, through mistake.' "

two or three articles daily; comparing the description with the substances themselves, and submitting any doubt that may exist, to the preceptor at the earliest opportunity. The names of the articles of materia medica of the London Pharmacopœia should be early learned by heart: and if some useful work of reference, such as Mr. Thomson's excellent *Conspectus*, be presented as a reward of diligence in performing this task, the pupil will begin to feel the satisfaction of knowing that he is advancing in the study of his profession, and will be encouraged to persevere.

The arrangements for the treatment of surgical accidents should be familiar to the pupil. A dressing-box should be arranged, containing, in neat order, all the requisites for immediate use, and a list should be kept with them, so that the box may be rendered complete every morning, or as often as may be required*.

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* ARRANGEMENT OF A SURGICAL DRESSING-BOX.

Instruments, &c.

Scissors.	Tenaculum.
Forceps.	Ligatures.
Spatula.	Tourniquet.
Probes.	Needles, straight and
Lancets.	curved.
Head rasor.	Caustic case, &c.

Bandages, &c.

Two many-tailed bandages.	Four rollers, 2 yards each.
One eight-yard roller.	One dozen ditto, 1 yard,
Four rollers, 4 yards each.	for bleeding, &c.
Four ditto, 3 yards.	Smaller bandages.

Dressings, &c.

Lint.	Cerat. neutrale.
Ditto in small pieces.	C.M.P. (ung. hydr. nitr. ox.)
Pledgets.	Emp. resinæ.
Cerat. simp.	Ditto on black silk.

Sundries.

Compressed sponge.	Solut. argent. nitrat.
Ol. amygd.	—— cupri sulph.

&c. &c.

A vessel with a cover, containing water, is convenient to receive dressings when removed from ulcers, &c.

An arranged index of all the surgical instruments and apparatus should be made, as recommended for the medicines, &c. in the shop, indicating the place of each. Periodical inspections, not too distant, should be regularly made, to prevent confusion, as well as to guard against rust.

Cards of arrangement for the apparatus necessary in various surgical operations, such as the reduction of fractures and dislocations; operations for hernia, &c. &c. should be written, so that the pupil may have the preparatory arrangements, as it were, at his fingers' ends.

The *apparatus ad inspectionem cadaveris*, as well as most others, divides itself into two parts, viz. those things which are to be provided before leaving home, and those which are expected to be furnished at the place of operation. It may not be amiss to transcribe the card*, which for many years

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* APPARATUS AD INSPECTIONEM CADAVERIS.

Complete head case:—if that not present, take
Scalpel case, &c.
Saw.
Lever.
Head prop.
Whalebone.
Toothpick.
(When it is previously known that the head will not be examined, these articles may be omitted.)
Bladder.
Sponge.
Ligature.
Armed glover's needles.
Thimble.

To be had in readiness at the house.

Water and soap.
Wash-basin.
Slop-pan.
Towels.

Windows to be properly shaded.

The body to be placed on a table or board in a convenient light (generally the head towards the window), and to be denuded as far as necessary, to begin the examination.

After

past has served as a memorandum for my pupils. On one side are stated the mechanical requisites and attentions, and on the other the essential circumstances to be observed in drawing up a report of the examination of morbid appearances. It has been a general rule to require from my domestic pupils a written report of every dissection at which they were present, as a sine quâ non of their attendance, and that the report should be delivered to me within the twenty-four hours next ensuing. At first, as might be expected, these reports were very imperfect; but as by repetition the subject became better understood, they gradually improved. The imperfections and occasional errors were pointed out, and sometimes the statement which I had made for my own use was referred to, to show the omissions in those of the pupils, and further that they should be aware that it was their welfare, and not my convenience, which made me exact the strict performance of this exercise.

The treatment of common wounds and ulcers, with the neat application of bandages, will soon become familiar to the apprentice of any one who has a fair share of surgical practice. The principles on which the treatment is founded

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After examination.—Divided integuments to be neatly stitched; the body cleaned and dried (also the table); then to be returned to the coffin, or former situation, replacing the shroud or covering.

Report of examination of morbid appearances after death.

Description of person, and mode of life.

History of illness, or accident preceding death.

Time elapsed since death.

Persons present at examination.

External appearances.

The head.
The chest.
The belly.
} The particulars of the examination of each.

Any general or particular observation deducible from the examination.

Report to be signed by physicians and surgeons present.

should be explained, and the niceties of mechanical management be pointed out. The habit of inducing pupils to consider what may be wanted in cases of accident, and a quickness of observation during the use of mechanical means of treatment, cannot be too much encouraged. Such habits, when established, are delightful both to teacher and pupil, and tend not a little to promote the welfare of the patients. I will venture to mention an instance, out of many which might be selected.

A youth, under the age of fifteen, was left (his seniors being accidentally absent on urgent business) in charge at home, when his master was sent for to visit a patient who had cut his throat, and was stated to be bleeding to death. The youth instantly collected the requisites, and hastened, with all the speed he could use, to inform his master, whom he readily found. As a reward for the diligence he had used, the master bade the youth accompany him. During the examination of the wound, the pupil busied himself in procuring hot water, towels, &c. and in arranging the materials which he had brought, on an adjoining table; and as soon as he saw his master ready to proceed, he, although the hideous appearance of the gash would have sickened many young men, anticipated every wish, by keeping steady the patient's head, and applying fingers on the points from which the bleeding proceeded, handing clean hot sponges as often as required, the tenaculum and ligatures, armed needles, the scissors, towels, strips of plaster, compresses, bandages, &c. In short, the dressing was most satisfactorily completed without the principal having once to ask for any thing which he required; so perfectly did this youngster's attention render the request unnecessary.

This patient's recovery took place without any untoward circumstance. The insanity which produced this accident was subdued by the great hæmorrhage in the first instance, followed up by low diet and other antiphlogistic treatment.

Every day will furnish opportunity for some part of phar-

maceutical instruction. When the names and appearances of medicines have been learned, the properties and doses must be added, and dangerous articles be readily distinguished. The proportions of opium, antimony, arsenic, &c. in any of the regular compounds, must be so familiarly known, as to render any deviation from ordinary doses immediately obvious. Illustrations by experiment should be permitted and encouraged under the superintendence of a senior, and the young pupil should be induced to mention the results of such experiments to his preceptor. This plan possesses many advantages too obvious to be dwelt upon.

In large towns or cities, the frequency of examinations of morbid appearances will afford opportunity of communicating simple yet accurate elementary views of anatomy, which may enable the pupil to understand what he may read on the subject. The plan I have found to succeed has generally been to avoid attempting to teach too much at one time, and to endeavour to make the little taught clearly understood. The alimentary canal may form a first lesson, naming the parts simply without any reference to technical jargon, and in their natural succession: the lungs may form a second lesson; the heart and large blood-vessels, a third; the brain, a fourth; making the views as simple and elementary as possible. When these are so far understood, the parts should be again demonstrated, adding the technical name to each. The abdominal viscera, omitted in the first demonstration, may now be shown; the circulation of the blood may be explained, &c.; and thus proceeding, step by step, a certain extent of useful and accurate knowledge will be acquired. Each demonstrative lesson should be followed by the pupil reading the description in some elementary work, and I know of none so well fitted for the young student as Cheselden's Anatomy. Let him discuss the subject with his teacher, and freely propose any doubts or difficulties which he may be unable to solve.

The preparing of the requisites for anatomical examination,

and adjusting the body after examination has been made, ought to be the work of the pupil. Every exercise of this kind, neatly performed, will be a preparatory lesson in surgery, in which he is most likely to excel who to an observant mind can add the expert use of his hands. These examinations will also admit of the demonstration of the anatomy of the bend of the arm concerned in bleeding, which may, by neat dissection and methodical display, be rendered so simple as to be clearly understood and remembered by the pupil, and enable him to perform the operation of bleeding with more certainty and precision than many who have been years in the profession can lay claim to. Let the operation on the living body be as carefully shown, impressing on the pupil's attention, step by step, the various circumstances on which its successful performance depends. A similar mode of instruction should be adopted in explaining the anatomy of the jaw, before the pupil be allowed to attempt the extraction of teeth. In short, if instruction precede practice, the first efforts of the pupil will seldom be unsuccessful, and much suffering will be saved to the patient.

To show that such elementary instructions may be rendered practically useful, I venture to relate an incident which occurred some time ago, not that I would have it supposed the individual mentioned possesses any qualification superior to what may usually be found in young people who have been accustomed to habits of accurate observation.—A youth, under the age of fourteen, whose school education is not yet terminated, but whose habits have been formed with intention to bring him up in the medical profession, had practised drawing from geometrical solids till he was nearly tired of them. A small copy of Cheselden's engravings of the bones had been given to him to use for his amusement.—J. "I am almost tired of these geometrical solids; I think I should like to draw some of the bones."—Mr. ——. "Very well: so long as you practise carefully, and do your work as well as you are able, you shall choose the subject for yourself."—J. "Thank

you, Sir: then, if you please, I should like to draw the shoulder-bone, which George was studying last evening."—Mr. ——. "Proceed then; and when you have drawn it, you may study it also, if it will afford you any amusement." [The drawing of the scapula, and subsequently of the clavicle, was fairly performed; and he then learned the names, and studied the appearance of the various parts and processes of these bones.]—Mr. ——. "Now, Sir, you have learned a number of names, and are therefore prepared to pass a verbal examination, as far as these bones are concerned; for some examine only in words: but that will not do for me: I must request you to show me these processes on the living body; and here is George, who will strip to serve as a model for you, on condition that you return the compliment."—J. "I am willing to try; but I do not think it fair for me to make the attempt unless you are so good as first to show me, that I may avoid mistake." [The prominent points were shown, and he and the pupil who served as model, each went over them, in turn, without error.]—Mr. ——. "Now, take care not to forget what you have learned, and I will some day put your knowledge to a further test."—Many days did not elapse before a boy was brought in who had fractured his collar-bone. After Mr. —— had satisfied himself of the nature of the accident, J. was called in, and told that the boy had fallen and hurt himself, and that he (J.) must endeavour to ascertain what injury had taken place. He very carefully passed over the processes of the scapula, feeling the angles; the spine; the acromion; and the coracoid process; he then traced the clavicle from the acromion to the sternum, and returned to the fractured part, examining it very carefully but rather timidly. He observed, "I perceive an irregularity here (touching the part), and it grates under my fingers when the shoulder is moved; I can find nothing else wrong. I believe the clavicle must be broken at this place."—The youth, who was mentioned as having rendered himself useful in the case of cut throat, was then called in, and came to the same conclusion; but another, older tha

either, but whose habits of observation had been less precise, failed in his investigation.

(The lesson of reducing it need not be added.)

I have known the puncture made in bleeding, fester in almost every instance which occurred in a public hospital during a considerable lapse of time. To the common observer this might appear strange; but on attentive inquiry it was evident, that, so far from the necessary attention being used to prevent this accident, it was wonderful that any should escape: whilst at another institution, the pupils of which had been strictly disciplined, the occurrence of festering after bleeding was scarcely ever met with, although the number of bleedings was very considerable: nay, what is still of greater consequence, is, that the life of a patient, labouring under acute disease, may depend on the manner of performing this simple operation. A proper quantity of blood, taken freely from a good orifice, shall afford perfect relief; whilst a much larger quantity from an imperfect orifice, incapable of affording a full stream, shall wholly fail in relieving the patient.

Some may perhaps be of opinion that I attach too much importance to these subjects, and that many have done well in the world who have never experienced any thing like this strict training. This may be readily granted, as far as the mere *money-making* success may be considered; but I boldly hope that any youth, whose mind is fixed on the *duties* of the medical profession, may take higher ground than can appertain to one who prefers the acquisition of wealth to the health and lives of those who confide in his skill. To the latter it may not be unuseful to hint, that in surgery, as in common life, ultimate welfare occasionally depends upon a strict attention to minutiæ as well as to greater matters. Who has not read Franklin's adage, "For want of a nail the shoe was lost," &c.? The minutiæ of surgery may well be compared with the horseshoe nail. There are few of the subjects of instruction to which I have attached importance, in which I have not witnessed evils that might have been foreseen and avoided, of

which I could enumerate instances but little fitted for the public eye. But to return to the subject of blood-letting. An unfortunate case occurred some years ago, in a populous seaport town, by which the prospects of a young surgeon, who had finished his education, and was a member of the Royal College, were ruined. A seaman was bled by this surgeon, and, from some cause or other, repeated hæmorrhage took place from the orifice. Sailors are not careful patients, and, not improbably, excesses might be indulged in. The bleeding was restrained, and when his ship was ready, the patient went to sea. In a coasting vessel, surgical aid is not to be expected; the bleeding recurred from time to time, and he died on the homeward passage. The ship returned to port *in mourning*, and the unfortunate belief that he had died in consequence of the bleeding was the general theme. In a provincial town oral communication often does more harm than the press; for, like the story of vomiting the three black crows, scandal loses nothing by going from mouth to mouth. There was another surgeon resident in the same street, and the tale was so often told, that the patient had been bled by a surgeon in —— street, without the name of the operator being mentioned, that many of the patients of this other surgeon believed that he whom they employed was the person who had bled the unfortunate man*. This surgeon, in self-defence, published a statement, that he was not the individual who had bled ——. I am far from imputing to the

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* This belief was so strong, that a surgeon, supposing that the case really had happened under the care of his friend, and before it was traced to the real operator, advised him, if he was conscious that the operation had been properly performed, to call a meeting of the medical men of the place, and to require the examination of the body to be made before them; but as he had not had any thing to do with the patient, this was not necessary. Probably no examination was required by the operator; and much obscurity remained as to the manner in which death had taken place.

surgeon who performed the bleeding any want of skill; but I cannot suppose that some want of attention did not exist either on the part of the surgeon or on that of the patient. I can conceive, in a mere slipping of the bandage and bleeding recurring, that the means used by uninformed persons, ignorant of surgery, might be so ill adapted to the purpose as to increase the evil; or, it is possible that the artery might have been opened as well as the vein. Whatever were the cause, the result, in relation to the surgeon, was, that his practice was ruined, and he was compelled to leave the town, where his prospects, before this unfortunate affair, had been more than usually promising.

Whilst the pupil is advancing in the knowledge of his profession, his general education should not be neglected. It seldom happens that this has been sufficiently attended to before the youth becomes an apprentice; but it rarely occurs that the duties required do not afford ample leisure, if good management and diligence be used in forwarding the work. That this leisure should be well and judiciously employed is of the utmost consequence to the pupil, and demands the friendly and encouraging assistance of the master *.

A certain degree of classical attainment is indispensable, and a portion of each day should be allotted to keep up or improve it: indeed, I have always considered a liberal edu-

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* I have known the master join in a family circle, in evening amusements calculated to improve his pupils, on a footing of perfect equality. Each took a subject of elementary knowledge which he had previously studied, and communicated it to the others, in the form of a short and familiar lecture. The communication was guarded from interruption; but as soon at it was finished every one in turn was permitted to ask questions relating to the matter, or to supply any illustration that might have been omitted. One of the juniors acted as secretary, and registered the results of the discussion. The exercise was both delightful and profitable.

cation as the best foundation for the usefulness of the medical character. This subject has been most ably illustrated by Dr. Jarrold, of Manchester, as it relates to commercial habits. He observes, " But it will be said, that a liberal education disqualifies a youth for the drudgery of business; he will not stoop to learn the practical part. I grant that education without discipline makes the fop; he is ashamed to be seen doing many things that become his situation as an apprentice, because he thinks, forsooth, that persons of an inferior education may do it: but the youth who has been made the subject of self-control, thinks it honourable to learn that which it is proper to know; and, therefore, without demur, he sets himself to learn a business, as he did the classics, by beginning with the grammar." The study of language, the medium by which our ideas are communicated, tends greatly to give accuracy to the ideas themselves. The mother-tongue should not be neglected; and if the French language have not formed a part of early education, it should now be commenced. An additional language may be considered as enlarging the number of our senses, by providing a new inlet to much and varied information; whilst every exercise of the mind, faithfully performed, confers greater power, and facilitates further acquisitions. Natural history, geometry, and some knowledge of the fine arts, drawing, modelling, &c. give accuracy of perception, and will be useful in the study of anatomy and surgery, besides being an independent source of much gratification. I could dwell on this subject as one of extensive utility, but shall in a further part of this essay show some instances of its application to the advancement of the student. Natural philosophy and chemistry should occupy a share of his attention, and should be illustrated by experiment as far as the means of the pupil will admit. The making and adapting of simple apparatus for these experiments, will greatly assist in establishing that ready and adroit use of the hands, so desirable in surgery. I would have every surgical pupil to be expert in the use of mechanical tools, which will render him fer-

tile in resources, when the usual and regular apparatus cannot be procured. It is true, that in a place like London, almost any apparatus may be obtained at a short notice; but it is not so in the country, where the welfare of a patient often depends upon the surgeon's ingenuity. Much valuable knowledge may be derived from observing the processes and manipulations used in various arts and manufactures, opportunities for visiting which should be afforded as often as convenience will admit. Indeed, the practical use of a turning lathe, and of mechanical tools in general, may advantageously be permitted to occupy some portion of the surgical student's leisure hours.

The attention of the pupil to the studies pointed out will induce the preceptor to afford him opportunities of witnessing the progress of disease in such patients as may with propriety be submitted to his inspection; and it may be required that the pupil shall keep notes of those cases which are pointed out as proper for that purpose. One or two at a time, well attended to, will produce more real improvement than many passed over in a slovenly manner. The active duties of the apprentice going hand in hand with his general and professional studies, the one will assist the other; the pupil will become conscious of his progress, and he will zealously and diligently avail himself of every opportunity of improvement. The anatomical investigation of fatal cases of disease or accident is so valuable to the pupil, that a considerate teacher will make considerable sacrifice to enable his pupils to be present, and to profit by such investigations, by leading their attention to whatever is important in the case, and further, by demonstrating such points connected with practice as may be fitted to their previous progress. The relations of the external jugular vein as concerned in bleeding—the introduction of the catheter, and the anatomy of the parts concerned—the introduction of the probang, and the removal of extraneous substances from the pharynx and œsophagus—the situation of the arterial trunks most exposed to injury from external violence, and the modes of suppressing hæmorrhage when they are wounded—the contiguity of im-

portant nerves, &c. will form valuable lessons. The parts concerned in hernia, carefully shown, will enable the pupil to understand and profit by any opportunity of seeing the operation performed on the living body. But it is needless to adduce particular instances to the intelligent practitioner, anxious for the welfare of his pupils. Nay, indeed, the occasions for imparting useful knowledge, growing out of a general medical and surgical practice of moderate extent, more particularly if the pupil have access to the practice of any public institution, are so numerous, that the longest apprenticeship could not exhaust them; and so far from an apprenticeship being necessarily irksome, when an ingenuous and diligent youth meets with a preceptor who faithfully performs the duty of instruction, this supposed period of slavery passes in the reciprocal interchange of good offices, and forms the most valuable foundation for the future eminence and prosperity of the pupil, and of conscious gratification to the preceptor.

It may not be altogether superfluous to recapitulate the employment and studies recommended during the latter years of an apprenticeship. It is to be presumed that the actual duties of the apprentice relating to business, when well arranged, may not occupy more than half the day; seldom indeed so much; although I have known an apprentice (even an assistant) be busied, owing to the want of method and arrangement, from morning till night in doing a portion of business which another, more perfectly drilled, performed with ease in an hour. The leading principle is, whilst work remains to be done, to set resolutely about it, and not to relax until it be completed: the student may then, and not till then, consider the surplus time his own, and set about his studies with equal ardour, until business again require his attention. His studies may comprise, exclusive of the professional opportunities before pointed out, classical and general literature; French language *; drawing and modelling; natural history; natural phi-

* The German language may be added if leisure and opportunity permit; but the important principle appears to be, rather to do little

losophy; chemistry; arts and manufactures, when opportunity may occur. To render these combined studies valuable, a common-place book should be kept, with a well-arranged index, in which the principal results of reading and of observation should be daily registered. This exercise will prove highly useful; and will be the means of preserving the recollection of important facts, which, trusted solely to memory, would soon be lost. I should recommend as the first exercise, that the student should analyse and abridge the story of "*Eyes and no Eyes*," in Dr. Aikin's delightful juvenile work, *The Evenings at Home*. The second exercise may be the tale of "*Order and Disorder*" in the same work; and the third, "*Great Men*." After these the student may select for himself. A moderate share of manly exercises should be permitted, such as swimming, riding, &c. and perhaps some of the lighter accomplishments.

The immediate management of accidents, such as dislocations, fractures, wounds, &c.* should be well understood by the pupil: his own improvement will be promoted, and in proportion to his intelligence will his services be valuable. These acquirements may be founded on such anatomical opportunities as have been before alluded to, and on a clear exposition of the principles which should guide the treatment. These

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and well, than by grasping at too much, lose, like the dog with the meat in the fable, the substance for the shadow.

* When present at the examination of morbid appearances in the dead body, I have known pupils who had never attended a public lecture, placed in friendly competition with those who had finished their education, and had obtained that *summum bonum* of their wishes, a diploma. A case of wounded artery has been supposed, perhaps one which might have recently occurred in actual practice, and the finished student requested to show the junior how to secure the vessel by ligature, which he has been unable to perform, whilst, on the corresponding part, the junior has effected it with as much readiness and precision as he would have made a calculation in arithmetic.

expositions are the most valuable when made with reference to cases under the observation of the pupil. When they thus form illustrations, and are clearly understood, they will seldom be forgotten: if the pupil should not be able to retain the whole, repetition, and not invective, should be used to supply the deficiency.

Thus initiated, the pupil is prepared to derive improvement from lectures; and although I am persuaded that the value of this mode of instruction is frequently over-rated, I have always taken care that my apprentices should have time and permission, as the result of previous diligence, to attend anatomical lectures aud dissections previous to the expiration of their apprenticeships. But as the consideration of lectures will form a part of the discussion relating to subsequent studies, I shall merely remark, that some of my friends, who, actuated by the best motives, have recommended their pupils to *begin* their medical and surgical studies by attending lectures, have been much disappointed in the results. The pupils have wasted their time, and, after repeated courses, have remained ignorant of the most simple principles of medical science: whilst habits, the very reverse of diligence, were established. If we examine the relation between cause and effect, the result cannot appear surprising; for, without a certain degree of preparedness, instruction may be offered, but cannot be received; and perhaps the lectures connected with medical science require this preparedness in a higher degree than may generally be supposed necessary.

A friend to whom the preceding observations were shown, objected, that such a plan of instruction would require the sacrifice of nearly the whole time of the teacher. I had much pleasure in assuring him, from experience, that, far from such being the case, the early efficiency of pupils thus rigidly instructed, rendered the saving of time very considerable. To an intelligent and willing traveller it is sufficient to furnish him with an accurate map, and to point out to him the objects most worthy of his attention; it cannot be necessary to take

him upon one's shoulders, and carry him throughout his journey. Just so it is with regard to the advancement of pupils: the road must be distinctly shown, the essential objects of observation be repeatedly indicated, and the progress be examined from time to time; but the *labour* must be that of the student himself. Moreover, as every one considers the labourer worthy of his hire, I hold the conducting a medical education to be an important trust, which merits a fair remuneration; and that it is more just to receive an adequate premium, and to perform the duties of instruction faithfully, than to suffer the best years of youth to be idly wasted.

The termination of the apprenticeship having arrived, the plan of subsequent study forms one of the most important events which influence the future usefulness of the student. If the plan be well arranged and diligently followed, he becomes qualified to afford efficient medical aid: if the time be wasted, he becomes dangerous in proportion to his ignorance, and perhaps may send many untimely victims to the grave, whose lives might have been saved by competent science and skill.

Before attempting to suggest any improvement, it becomes necessary to inquire what are the usual arrangements, and what are the defects to which they are liable.

The prevailing error, with many students, seems to be, to consider the passing of examinations as the great object to be aimed at, rather than the acquirement of that knowledge without which they cannot perform the duties of an arduous profession with honour to themselves and with benefit to their patients.

A student arrives from the country, after having served an apprenticeship, with opportunities of gaining professional knowledge, more or less limited, according to the circumstances in which he has been placed. He arrives in the metropolis with a determination to remain one year, and to pass his examinations at Apothecaries' Hall and at the College of Surgeons. He makes inquiry, and finds that the examination at

Apothecaries' Hall requires certificates of attendance on two courses on anatomy and physiology; two courses on the theory and practice of medicine; one course on chemistry; one on materia medica; and six months on the medical practice of an hospital: lately, I believe, restricted to the certificate of some branch of the College of Physicians in London—total, six courses, and six months' medical hospital attendance. The College of Surgeons requires now three courses on anatomy, and twelve months' attendance of the surgical practice of a metropolitan hospital. *No country hospital!* Lectures on surgery are required; but the number of courses is not stated, say two. The total for the year's employment will stand thus:

For Apothecaries' Hall - - -	6 courses
For College of Surgeons 5 — 2 = 3	
Total	9 courses;

and six months' medical and twelve months' surgical practice, without any allowance being made for practical dissection, or for midwifery.

Leaving Sunday out of the calculation, let us examine the time these courses of instruction occupy.

Anatomy.—Lecture from one to two hours, according to the custom of the school } say	1½
Demonstration - - - - - - - - - - - -	1
Practice of physic - - - - - - - - - - -	1
Chemistry - - - - - - - - - - - - -	1
Materia medica - - - - - - - - - - - -	1
Medical practice - - - - - - - - - - -	1
Surgical ditto - - - - - - - - - - - -	1
Lectures on surgery twice or thrice a week - -	½
Total	8

This calculation does not include the necessary time lost in going from place to place, which is very considerable, nor that

which must be taken for meals: so that from eight in the morning till dusk in the winter months, does not, without some of the above being omitted, afford one single hour for practical dissection *, for midwifery, botany, or any other accessory branch of science; or for what is essential to form a sound judgment, viz. for reflection on what has been seen and heard. Some teachers of physic, knowing the importance attached by students to passing examination at the Hall, kindly condescend to *cram* their pupils for an additional hour daily, under the name of examination. So much does the taste for this parrot-like exercise prevail, that the majority of pupils would rather absent themselves from any or all of their other pursuits, than be absent from this delectable treat. During the short interval allotted to what are called the summer courses, the time may not be so fully occupied; but the heat of summer does not constitute the most favourable time for dissection; nay, at the schools of anatomy connected with the larger hospitals, no lectures on anatomy are delivered during summer, neither are the dissecting-rooms open. To hurry, thus, through a course of studies, if studies they may be called, as too frequently happens, is not less absurd than the attempt to fill a sieve with water, in which the more that is poured, so much greater is the rapidity with which it escapes.

With so imperfect a foundation as above alluded to, and big with the supposed dignity of a surgical diploma and a medical license, many return to the country with little more than the mere nominal qualifications of a surgeon and apothecary.

I am willing to hope and believe that this senseless plan of proceeding is fast falling into disrepute; but I cannot avoid

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* I have in many instances known that the sum of dissection performed by a student of ordinary diligence has been part of one, or part of two extremities during the season (eight months), the subjects spoiling before the dissection, owing to the very limited portion of time allotted to it, could be finished.

thinking that it has prevailed to a dangerous extent. Some allowance may, perhaps, be made for the scanty means of many deserving young men, who may have entered the profession without having been truly informed of the amount of expense required to complete a medical education, after the termination of a country apprenticeship; and, further, the very remuneration, which many remote country districts afford to medical men, is totally inadequate to the expenses of a sufficient medical education. It is right to mention these circumstances as affording some palliation for imperfect attainments; although I cannot attempt to justify gross deficiency in the practitioners of an art on which the lives and welfare of thousands may depend.

But let us turn from such painful contemplations, and, in the hope that it may not be without use to the student, endeavour to trace a plan of study which may extend the usefulness of the healing art.

It may be gathered from what has been said before, that I consider the period of one year as too short, after the usual attainments of an apprenticeship, to qualify a student for the arduous responsibility inseparable from the practice of the general medical practitioner. To the student whose apprenticeship has been well conducted, and whose mind is prepared for the task, I can conceive that the most essential of medical and surgical studies may be comprised in one year; but I am far from recommending so limited a course of study. A sound judgment cannot be formed without ample opportunity for observation, aided by mature deliberation; and the intelligent student will profit more by a second year of study than he could, by any exertion, during the first. I would, therefore, recommend as a sine qua non, that the arrangement should be made for *at least* two years, whether these years be in immediate succession, or separated by an interval, during which some share of the responsibility of practice may be entered upon, or the mind may be expanded by the acquisition of general knowledge.

It is presumed that the elementary education of the student shall have been so far completed before the termination of apprenticeship, that his mind shall be prepared to receive that kind of instruction contained in lectures; which are seldom adapted to the uninitiated student: indeed, this must be obvious, when it is considered that a course of lectures is compressed into an hour or so a day, for four short months; and that they are delivered alike to those *beginning* and to those *finishing* their medical studies: consequently they must in many parts be too abstruse for the young student, or too simple for the advanced student; and it not unfrequently happens, that the chief part of a first course is lost, before the novice become sufficiently familiar with the technical phraseology introduced, to be able to understand the discourse. I have even known illustrations from natural philosophy, excellently adapted to elucidate the subject, supposing that the student had already become familiar with that branch of science, so perfectly fail in their object, that neither the subject nor the illustration was understood. Sometimes an impression the very reverse of that intended by the lecturer has been made on the mind of the ill-educated student.

The foundation of a rational memory is a perfect comprehension of the subject: how, then, can we expect a pupil to remember that which he has never understood?

It has been observed by an author, to whom the profession is deeply indebted*, and the truth of which almost every individual can verify from sad experience, that "hardly any one has been so fortunate as to pursue the study of his own science under any regular and perfect plan; and there are very few with whom a consciousness of this does not make a deep and serious impression at some future period, accompanied with severe regret for the loss of time never to be retrieved."

The time to be allotted to studies after the termination of apprenticeship, is too often regulated by the limit of pecuniary

* The late Mr. John Bell.

resource; by the example of others; or not unfrequently, by prejudice ill calculated to promote the great end of medical education, the public good. The time requisite may vary according to the degree of preparedness of the pupil: he who has served a well-conducted apprenticeship with ample opportunities, shall be much sooner fitted for practice than another whose apprenticeship may have been confined to the pestle and mortar, and whose opportunities of general and professional improvement have been extremely limited. It is not the time, so much as the actual acquisition of the necessary knowledge, that should be taken into account; for, in a profession on which health and life depend, deficiency of elementary education is not merely censurable but criminal. One year I should consider the least time in which the most essential studies could be performed; but a period of two or three years possesses many advantages which shall be alluded to in a subsequent part of this paper.

The progress may be rendered more certain by the judicious superintendence of an experienced practitioner, with whom the student may be placed as house pupil, especially if the instruction combine the advantages to be derived from observing and discussing the practice of some public institution.

The plan which I would recommend, and which I have known to facilitate the progress of the student beyond his highest expectation, is, to lay a solid foundation in anatomy and physiology, previous to entering upon the treatment of disease, which, without a knowledge of anatomy, cannot be understood. The architect who should attempt to build a house, without a solid foundation, would be justly laughed at for his ignorance; yet in the education of medical and surgical students we daily witness as obvious absurdity, in beginning where that education should end.

I advise, therefore, the student to commence his anatomy with all his zeal, and to spare neither labour nor perseverance till he acquire a knowledge of the natural structure of the human body. This cannot be done by lectures or demonstrations

alone, however diligently they may be attended. Even the physician would find his account in dissecting for himself; but to him who intends to practise surgery, I consider it as a kind of sacrilege, if he dissect not by his own hands. The direction of a good anatomist will save him much time by putting him into the right way; but if he mean to profit by his labour, he must dissect for himself. Yet there is one step preparatory to dissection itself, without which it will not avail, and that is a correct and ready knowledge of the bones. These should be so well studied, that the naming of any process to which a muscle is attached, should instantly excite the recollection of the situation, and form of the part named. In addition to the lectures on anatomy, the work of Monro on Osteology will be a valuable help to the student. The descriptions are accurate, and the arrangement is clear and methodical. I would advise the student to take the book and the bones, and to examine and compare the subject of the lecture for the day, until he shall have that clear conception and perfect knowledge of the parts he has studied, that he should be able to write the description from the bone itself, without reference to the book. The knowledge of the bones may be considered as the alphabet of a language, without a ready and correct use of which, it is futile to expect higher attainments. The hour of demonstration and description, which the lecture of the day occupies, will furnish sufficient material for the labour of the remainder of that day; but every step must be so perfect as not to require retracing: "Vestigia nulla retrorsum."

It will be an useful exercise to arrange the bones in a tabular form. A very good specimen of the mode recommended may be found in Ashford's Tabular Views,—a work which contains a very neat outline of descriptive anatomy.

If the student be able to draw, I would strongly urge him to make careful drawings of all the separate bones*—the natural

* Drawing in chalk, or in pen and ink, requires little apparatus; but the material is of small moment, provided the representation be faithful.

size is to be preferred; and this exercise, with the study above recommended, will so imprint them in his memory, that he will be no more likely to forget them, than the letters of the alphabet.

Cheselden's large plates of the bones are splendid specimens of the graphic art; and are all that engravings can be, as substitutes for the bones themselves. They may serve as models for the representation of subjects in natural history, and are equally admirable for their elegance as for their extreme accuracy.

When the knowledge of the bones has been perfectly attained, and not till then, the student should begin to dissect. When he has obtained a part of a subject, let him reconsider the bones of the limb he is about to work upon, and if he can procure an articulated limb, or a skeleton, so as to place the dry bones beside him during his dissection, it will be of considerable use. His first dissection should be with reference to the bones and muscles only. Every muscle dissected should be diligently compared with its description, in some well-selected work of anatomy, and every attachment should be traced, observing, at the same time, the correspondent points of origin, insertion, &c. on the articulated limb or skeleton placed beside him.

Plates and drawing will greatly assist his progress, particularly in his studies at home, after the hours of dissection. The plates of Mr. John Bell are spirited and masterly, though somewhat loose and sketchy. The large plates of Albinus are of high value for their clearness and accuracy; whilst that part which shows the origin and insertion of each separate muscle, is well calculated to render the recollection of them clear and permanent. The portion under dissection should be studied as faithfully as recommended in reference to the bones. Every muscle dissected should be perfectly learned as to its situation, size and shape, attachments and use. This, with the previous thorough knowledge of the bones, will not be difficult, but will rather serve to delight the student with his progress; though without that previous or present knowledge of the bones, his

efforts can only end in disappointment and disgust. I would urge him to make drawings from the muscles which he has dissected. A student who is unable to draw may derive some benefit from tracing, by means of transparent paper, the plates of Albinus above alluded to; but if he be able to draw, his own representation of the dissection which he has himself performed, will present many associations capable of fixing the subject in his memory, which even a superior performance by other hands might not be able to effect. Besides, the delight he would enjoy in retracing this proof of his diligence in study, would be like that of a traveller, who almost seems to visit again the scenes which have afforded him delight, when he turns over the leaves of his sketch-book in which they are vividly depicted.

I should also recommend the classing and arranging of the muscles in a tabular form, confining it to those actually studied and dissected, which compared with the table in the work alluded to before, would show at once the progress of the pupil, and the blanks remaining to be filled up.

The same subject which furnishes the dissection of the muscles, will also serve for the study of the ligaments and joints; which should be dwelt upon with the same zeal and perseverance as the bones and muscles; making every part clearly and perfectly understood before proceeding to the next; and making drawings, tables of arrangement, &c. as before suggested. However slow the progress of the student who faithfully adopts this plan may appear, I will venture to predict that he will greatly excel those who prefer a less rigid mode of study: "Festina lente" is an excellent maxim in the study of anatomy.

I now suppose the student to be well grounded and tolerably ready in the knowledge of the bones, muscles, ligaments, and joints; the intricate muscles surrounding the spine may have been studied to render the tables of the muscles complete; but if otherwise, I should not consider the omission of great importance. The dissection of these muscles gives neatness in the use of the knife, which is nearly all the practical benefit that may be derived from it.

At this period a general knowledge of the internal viscera may be attained, or rather improved; for, if the apprenticeship have been fairly conducted, these viscera must have been well understood in all essential points, although the minutiæ may have been passed over. The heart should be well studied, as preparatory to the dissection of the arteries, and then the student may, with the advantage he already possesses of accurate knowledge of the bones and muscles, and the confidence in himself which he must have acquired from the assiduity of his previous labours, proceed to the dissection of the arteries; in which, far from being appalled by difficulties, he will be delighted with the ease and certainty of his progress. I have known instances in which some intricate parts of anatomy had been simplified by arrangemnt, so as to reduce them to the state of preparedness of young pupils, and in which the pupils began with no very pleasing anticipations, having heard some older companions descant on the great difficulties in learning anatomy. By a due share of diligence, portion after portion was perfectly learned, and the observation has been made: "When I began to study anatomy, I thought it must be so difficult as only to be understood by men; but if what little I have learned, be a fair specimen of what remains, I know not whether to consider it the more easy, or the more delightful."—Who, indeed, can investigate the works of nature without delight in contemplating the skill and infinite wisdom displayed in the wonderful structure of the human body?

Arrived at this part of his studies, namely, the anatomy of the arteries, I would entreat the student to be deeply impressed as to the importance, nay, as to the indispensable necessity of an accurate and complete knowledge of the arteries; and to acquire this knowledge, as he values his reputation as a surgeon, the welfare and lives of those committed to his care and skill, or, though last not least, the approbation of his own mind. In many cases of wounds and accidents the life of the patient must be saved by the skill of the surgeon, or be sacrificed by his ignorance.

The first subject, or part of a subject, to be dissected for the arteries, should be injected. When the arteries are filled with coloured injection, they are easily distinguishable, and may be traced to their smallest branches, which ought to be done until both trunks and branches are perfectly familiar to the student. I would not be misunderstood to intend that this knowledge should be confined to names; no: it must be of a very different kind; the student who already knows perfectly the bones and muscles will be able to trace the relation of the arteries to every fixed point which may assist him in finding them in the living body when wounded, or may enable him to avoid them in operations in which they ought not to be injured. He will ponder over the principal trunks until he shall have satisfied his mind that he can trace all the relations of each trunk with the parts which surround it. He should make careful drawings of the larger arteries in all the situations accessible to surgical operation, and dwell upon these parts in all their bearings. He will of course observe the nerves, veins, and glands, which he may remove to afford a clear view of the arteries; but the time for making himself master of all these, is not yet arrived.

When he has faithfully studied and dissected the arteries, I would recommend him to procure a young subject, even a still-born child may answer the purpose, and dissect the nerves, tracing them from their origin to their distributions. The peculiarities of the fœtus may be traced on the same subject; or another may be procured for that purpose; and to study the eye, ear, &c. when it may accidentally occur that an adult subject cannot be immediately procured. This will require considerable patience, and the frequent use of the saw and chisel, in addition to the knife; but the ready knowledge already obtained, of the parts through or along which the nerves pass, will render success certain *.

The veins should next be studied; but it is too much to

* The recent discoveries of Mr. Charles Bell, relating to the nerves, merit attentive consideration.

sacrifice a subject to this dissection. I should recommend that the veins of the neck be once dissected with the vessels injected with coloured injection. The veins of the viscera are also best seen when injected; but with the knowledge now attained, the student will be fitted to commence a series of full dissections, in which all the parts should be studied in their relations to each other. Neither arteries nor veins should be injected, but the parts should present as nearly as possible the appearances which appertain to the living body. The knowledge of the situations and textures of the arteries, veins, and nerves, will render it easy to distinguish them; and this exercise in dissecting the vessels without previous injection, and learning to distinguish them by their texture and appearance, forms the best foundation for practical surgery.

Every opportunity should be taken to cut down upon the arterial trunks within the reach of surgical operation; and the precision and certainty which must result from the previous severe study, must render this exercise both valuable and delightful. "Let him also remember, that studies like these, well performed during his early years, do, like past dangers, or the remembrance of good deeds, give an ease and pleasure to his after life."

I have before recommended drawings to be made: in this stage of progress I should advise that the student MODEL the parts which he has dissected, and afterwards colour them. Outline drawings, with references, should accompany these models. The attention and abstraction which these exercises require, give a power to the mind of far higher value than the drawings or models produced: the accuracy of knowledge remains, although the drawings or models be destroyed.

I may congratulate the students, that these auxiliaries to the study of anatomy and surgery begin to be appreciated; the Society of Arts having, much to its credit, offered honorary rewards for the best models and drawings from actual dissection: the latter is confined to medical and surgical students; as it could not be supposed that they should be able to com-

pete with professional artists in elegance of representation; and I may state that the Society anticipates that these premiums may excite to exertion, likely to prove beneficial to the student and to the public.

The learning of the lymphatics, of the viscera, of the organs of sense, &c. &c. will be rendered perfectly easy by the severer studies which have preceded. If time permit, these organs may be prepared by the student, but should not be undertaken until the previous dissections have been fairly performed. Some of the organs of sense, as the eye and ear, may be prepared as an amusement, after the more arduous study of the day has been completed.

Besides the improvement to be derived from constructing synoptical tables of the various parts of the body which he has dissected, and the making of drawings, models, &c. much may be gained by hanging them around the walls of the student's sitting-room. Many spare moments will thus be usefully employed, which might otherwise pass unheeded. Frequent reminiscence should be practised until the student can readily recognise every part of an outline, drawing, or model, without marks of reference. The same use may be made of these *studies* as may be derived from the practice upon outline maps in the learning of geography. The pupil who can trace the situation of every remarkable kingdom, river, city, or town, on outline maps, and is well acquainted with the boundaries, the latitude and longitude of each, can have no difficulty in tracing them upon the finished map. Neither is it likely that the surgical student who can recall to his mind every necessary particular of an accurate outline drawn by himself from his own dissection, should experience difficulty in recognising these parts when exposed in the living body, the colour, form, texture, and boundaries affording the same comparative facilities as the finished map. The exercises above recommended possess the requisites as well for technical as for *rational* memory.

During the prosecution of these dissections the lectures on

anatomy and physiology are daily attended, and the description of the parts demonstrated in the lecture should be carefully read in the after part of the day. No other study should interfere with this solid foundation in anatomy; but a course or two of lectures on natural philosophy may be combined, and, whilst they enlarge the mind, may serve as a pleasing recreation. These lectures are delivered twice a week, in the evenings. Proposing these, at this period, rather as a relaxation from study, I should say, that the student ought not to enter deeply into the subject by reading, but should content himself with the lectures and demonstrations, which cannot fail to be both agreeable and useful.

The general arrangement for the first season will be confined to—

Anatomy and physiology, the chief object.

Natural philosophy, as recreation.

The dissections will stand thus:

Half of a subject for the bones, muscles, and joints.

Ditto for the injected arteries.

One small subject for nerves.

One entire head and neck for injected veins, &c.

Half subject for full dissections, without injection.

The internal viscera may be examined in each subject *.

The time may be stated as *at least* four hours per day, six days in the week.

For the study of the bones, before the commencement of dissection - - - - -	four weeks.
For the muscles, ligaments, and joints, allowing a fortnight for the head and neck, and the same for each extremity - - - - -	six weeks.
For the injected arteries - - - - - - - -	six weeks.
For the small subject for nerves - - - -	two weeks.

* The expense will be somewhat less than that of two entire subjects.

For the injected head and neck - - - - - - two weeks.
For the full dissections, without injection, allowing three weeks to each division, as above } nine weeks.

Total, twenty-nine weeks, leaving three weeks for the dissection of the internal viscera, the organs of sense, &c.*

The day work will stand,

For practical dissection, and making studies from dissected parts - - - - - - - - - - -	4 hours.
For attendance on anatomical demonstration -	1 hour.
For anatomical lecture - - - - - - - -	1½ hour.
For reading, arranging tables, &c. - - -	2½ hours.
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Total, nine hours, exclusive of lecture on natural philosophy, one hour twice a week.

The period of nine hours will be found amply sufficient for the purpose of study, if guarded from all extraneous interruption. The time allotted to dissection, anatomical demonstration, and the anatomical lecture (six hours and a half), is too long to be employed without some moderate interval. If the student breakfast at eight o'clock, he should be in the dissecting-room by half past eight. Let him remember the maxim recommended to him as an apprentice, "When work is to be done, lose no time in setting about it;" and within five minutes after entering the room his work should be begun. Four hours, steadily and diligently applied, will effect a great deal; only let the attention be concentrated to the subject before him. At half past twelve, the morning's work having been performed, the student should wash, and take ex-

* To the student who has learned despatch by perfectly understanding his work, this time will afford ample leisure for drawing and modelling from the dissected parts. The idler who has learned nothing perfectly, will perhaps think it far too little. The faithful student will find it more than enough.

ercise in the open air, rather than remain in the dissecting-room. Let him take some light food, if his stomach require it; as too long fasting and too close confinement in the dissecting-room are unfavourable to health. His short walk being over, he returns to the demonstration at one o'clock, which fills up the hour till nearly the time of lecture, viz. two o'clock. Suppose the lecture to continue an hour and half (which is half an hour too long; for, if the attention be intensely exerted, an hour is fully sufficient), the time will be half past three. An hour, but not more, may be given up to dinner and chit-chat. From half past four till seven, reading, writing, and reflecting upon the subjects which have formed the employment of the day, must not be interrupted. So faithfully would I have the time for reading, &c. preserved free from interruption, that I may suggest an hour or half-hour glass as a companion; which should count only the time actually employed, placing it upon the side during any interval that may unavoidably occur.

The remainder of the evening, when not occupied by the lecture on natural philosophy, may be spent in social conversation with some of his more intelligent fellow-students over a cup of tea, or in any harmless amusement which may be preferred. Let it be a fixed rule not to listen to any arrangement for pleasure till the duties of the day have been faithfully performed. The preservation of health requires temperance and early hours, under so full a share of mental exertion; and the student who values his health, will do well not to sit later than eleven at night, nor to be in bed later than seven in the morning.

The above course of study is calculated to occupy the season, or, in other words, eight months. The period at which the lectures terminate is generally about the end of May. Some teachers deliver a summer course; but if the studies above described have been faithfully performed, it may be more advisable to seek recreation and instruction in the country, so as to invigorate the health, and prepare the mind for

renewed exertion, when the lectures recommence, which is in October.

Supposing the lectures ended, and that the means of the student enable him to follow that arrangement in his studies which may the most contribute to his ultimate welfare, I should recommend him to cultivate his general knowledge for a time, allotting to his anatomy, &c. just sufficient to prevent his forgetting any part of that which has been learned. For this purpose, half an hour a day, with the assistance of his tables, drawings, &c. will probably suffice. Memory, like most of the other powers of the mind, may be compared to edge tools, which, when improved by daily practice, are clear, penetrating, and bright, and always fit for immediate use; but if neglected, they contract rust, and are good for nothing.

Previous to quitting the metropolis, it may be well for him to take such a survey of the useful and ornamental arts as his time shall permit *.

Having in some degree satisfied his curiosity, as far as may be done in the space of a week or two, he will do well to visit the country. If he have suffered by the closeness of his atten-

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* The exhibition at the Royal Academy; at the British Gallery; the British Museum, and other collections connected with the fine arts, should be visited. Among the private collections, the admirable sculpture of the justly celebrated Chantrey should not be omitted: his liberal encouragement of the student in the arts cannot be too highly commended. The collections of the Marquis of Stafford; Sir John Leicester; Mr. Hope, and others, are of great value. The Tower—the theatres—the Colleges of Physicians and Surgeons, and though last not least, the inspiring monuments of the glorious dead, cannot fail both to delight and instruct. The useful arts should not be less the objects of his attention. If the student have not witnessed the art of printing, he will do well to make an early visit to some large establishment where it is carried on. Copper-plate printing is generally a separate branch; but I must refrain from entering into particulars: the intelligent student will easily find materials for investigation.

tion to his anatomical studies, his health and his improvement may go hand in hand in the study of botany. To enter profoundly into the minutiæ of this science, would require more time than he is likely to be able to spare: moreover, it is not necessary. The arrangements adopted in botany are well calculated to impress on the student's mind the advantages of order and method in study. His knowledge of anatomy will render him able to profit by reading works on physiology, without the assistance of a teacher. It is probable that the best elementary works have already been read in illustration of the physiological remarks of his anatomical lecturer: if this have been omitted, another half hour a day given to physiological reading will render him familiar with the principal facts of this science.

In this, as in other branches of science, should any part remain imperfectly understood, after the student has used his best exertions to comprehend it, a note should be made, that he may bring the subject under discussion whenever he may have an opportunity of having his doubts elucidated. Any subject in general knowledge, which may have escaped a due share of previous attention, may be considered. The remaining time, till the recommencement of the lectures, may be profitably spent in travelling, and in visiting objects of interest, whether in nature, art, or manufacture: and if his previous habits have been those of avoiding useless expence, these advantages may be found consistent with moderate cost.

What can be more interesting to the inquiring mind than to examine the various contrivances in the working of mines, and the still more various and ingenious processes subsequently employed to render the crude material subservient to our use and comfort?

The hospitals that fall in his way, may be visited, but, in the present state of his knowledge, should only form a secondary object of his attention: I say *secondary*, because, unless his attainments have exceeded what have been supposed, his mind is not prepared to derive all the advantages which may

result from visiting hospitals at a more advanced period of study. He may observe and inquire as to the general management of each establishment;—the average number of patients;—the most prevailing diseases; the most frequent accidents, operations, and their results; and defer entering into details until a future opportunity. His commonplace-book, by daily additions, should bear evidence that his time has been well spent. The habit of recording facts and observations whilst they are fresh in the memory, is so valuable in the actual duties of the medical profession, that it cannot be cultivated too assiduously.

Some of the most useful discoveries in science have been deduced from the practice of writing and arranging memoranda to serve as subjects for future meditation. An example worthy of imitation may be found in Dr. Franklin's history of his discovery of the identity of electricity and lightning.

It may perhaps be supposed, that this mode of spending the summer vacation is quite extraneous to medical education. I believe it is not. I consider it as a practical mode of improving the powers of observation, on which intellectual education chiefly depends. The object of medical instruction is sufficiently important to deserve the benefit of whatever collateral helps may be derived from other sources of knowledge. That all the arts have one common bond of union, is a truism which is universally admitted. The intellectual power which is attained by a general knowledge of the arts and sciences is greater than can be derived from any one of them, however intently that one may be studied. Moreover, although I confess it with humiliation, it is not to be concealed, that the skill evinced in the ordinary practice of medicine, in whatever department it may be examined, compared with the admirable tact, dexterity, and precision, which may be every day witnessed in other arts, is so humble, that it may well put the medical profession to the blush. Nay, humanity almost shudders at the thought, that men unskilled in any other tools than the daily use of a knife and fork, should with unhallowed

hands presume to operate upon their suffering fellow-creatures. What must be the impression upon the mind of a skilful workman who should witness the performance of surgical operations;—suppose what has actually happened—that a surgeon has proceeded to amputate a limb, yet so little versed in the use of mechanical tools as not to be aware that the saw he was about to use was essentially deficient, owing to the teeth not being *set*, till the saw was so tightly wedged in the bone, that he could neither move it backward nor forward! and it might have so remained, had not the mechanical aptitude of another enabled him to proceed.

We may boast of the expertness of surgical operations; but generally compared with manipulations in other arts, I fear that all that may be said will amount to this, that he who is most free from reproach is merely the least awkward; for it is a rare combination to find all the requisites of mind combined with that dexterity of hand which ought to characterize so noble an art as that of alleviating the sufferings of our fellow-creatures.

The summer vacation past, the student returns, early in October, to his medical studies with renewed ardour, determined to surmount every difficulty by adequate diligence and perseverance.

It may be well to premise, that the objects of attention for this second season are too numerous to be perfectly learned: a general outline of the necessary qualifications may be acquired; but the most essential of all, a severe course of clinical study, can only be successfully conducted by the previous attainment of accurate and ample elementary knowledge.

During the first season I have not recommended notes to be made of lectures, because until the subject of the lectures be understood, I consider the practice as worse than useless. When so thoroughly comprehended that the pupil can follow the lecturer in his demonstrations, reasonings, and illustrations, he may advantageously make notes of arrangement, of important facts, and of practical inferences. These notes

should rather serve as materials for thinking, than ape to be transcripts of the very words of the lecturer. If the subject be one of demonstration, his eyes may be better employed than in writing: suppose anatomy, for instance—the most elaborate lectures are seldom more perfect in description, than the published works on descriptive anatomy, whilst the taking away of his attention from the subject of demonstration deprives him of the best part of the lecture.

When notes are made, they should be written with ink, and during the time of lecture. This may be easily effected, when the subject is well understood. The time of a student ought to be more valuably employed than in *transcribing* notes of lectures. Blanks may be left, which may be filled up as soon after the lecture as convenient; and if the work be the less elegant, owing to rapid writing, abbreviations, &c. it will not be the less useful. Short-hand has an imposing appearance; but I believe it is essentially defective: many who have written discourses in short-hand have been, after the lapse of a few years, unable to read them; and the great liability to error, as well as the labour of transcribing, may be avoided by writing in abbreviated English, and by filling up the blanks as soon as practicable. Short-hand holds out a convenient method of making brief notes and memoranda, which it may not be desirable should be read by others; but notes relating to science need no concealment, although I have always considered them to be written for the exclusive use of the student himself, and not for the purpose of exhibition. Writing in pencil —in short hand, and all plans which require the thing to be done twice, when once should answer every useful purpose, have always appeared to me to be so much waste of time, and I have known fellow-students who have begun this double work with great ardour, find it impracticable to proceed, and therefore have abandoned it. I have never experienced difficulty, by the adoption of the above simple plan, to commit to paper the substance of any lecture I wished to be able to refer to; but he who lays a solid foundation in elementary studies,

will find that though his shelves may be filled with his volumes of manuscript lectures, which bear honourable testimony of his diligence; yet years of practice roll away without his ever finding it necessary to refer to them; whilst the reminiscences drawn from his own actual observation of disease, give him a well-grounded confidence, which mere lectures and the lessons of others can never impart.

The lectures on chemistry, with the demonstrations which accompany them, form an important object of attention. It is presumed that an elementary introduction to this useful and fascinating science has been made during the years of apprenticeship, when the pupil may have performed many of the more useful experiments, which may be effected without expensive apparatus, and which tend in a great degree to establish habits of accurate observation and of manual dexterity. Indeed so highly do I value the intellectual power acquired by the study of natural philosophy and chemistry, that it is my belief that an efficient medical education can scarcely take place, unless founded upon these as a groundwork. Besides, the student who has a tolerable knowledge of these sciences possesses a high source of intellectual enjoyment; for he can scarcely employ his observation in an ordinary walk, or examine any of the processes used in the arts, whether simple or complicated, which do not arrange themselves under some or other of the principles of these sciences; whilst the circumstances influencing health or disease, may very frequently be traced to physical causes, self-evident to the mind thus cultivated, which are wholly incomprehensible, if not actually invisible, to the common observer. Suppose two students visiting a brew-house, the one whose understanding has been thus cultivated, the other of equal natural ability, but without scientific knowledge. It is not beyond the bounds of probability, perhaps, in looking over the side of an apparently empty vat in which fermentation has been recently carried on, that a key twirled upon the finger (which is not an uncommon amusement to the vacant mind), might be dropped into the vessel. The means

of descent being easy, a boy might be desired to recover the key: the informed student, aware of the probable danger, recommends, that before he go down it may be ascertained that it may be done with safety; the other, seeing no danger, laughs at his companion's absurd notions of caution: the boy descends, and before he can reach the key, falls insensible upon the floor of the vessel. Suppose both to be actuated by the same feelings of humanity, the uninformed, in spite of the entreaty of his more prudent companion, quickly follows to render assistance, and instantly loses the power of being useful, by becoming as insensible as the unfortunate boy whom he intended to extricate. The informed student immediately traces the connexion between cause and effect, and equally anxious to save, adopts the only rational means of effecting his object. He is aware that carbonic gas is produced by fermentation; that by its greater specific gravity than common air, it must occupy the lower part of the vessel; that this gas extinguishes flame and animal life (or rather is incapable of supporting either of them); and that before effectual assistance can be given, this gas must be got rid of, or be considerably diluted with air capable of sustaining life. He knows that water rapidly absorbs this gas, and with the utmost despatch *dashes* water abundantly into the vessel: he descends with safety, and performs with ease that which neither good intentions nor bodily strength could effect, without the aid of science. Though I have supposed this case, its parallel of danger too frequently occurs. How often do the public papers relate instances in descending wells, entering vaults, &c. of victim after victim falling sacrifices to their humane but ill-directed efforts to save a fellow-creature! But to return to the subject of chemical lectures: as the demonstrations in these, as well as in anatomy, form the most valuable part, I would suggest that to these should the student direct his best attention. The lectures delivered in the Laboratory of the Royal Institution, in addition to the excellence of Professor Brande as a lecturer, possess the great advantages resulting

from the valuable and extensive apparatus and specimens belonging to that munificent establishment. The expence and completeness of apparatus alone would be equal to a moderate fortune, and far exceed what can reasonably be expected to be sacrificed by a merely private teacher. It is delightful to observe, that the thirst for useful knowledge so far surpasses the prejudice of self-importance, that these excellent lectures and demonstrations are attended by many, venerable in years and attainments, as well as by junior students—a distinction which the punctuality of the lecturer, as well as the able manner in which the experiments are conducted, fully justify. There is no asking for this or for that; on the contrary, by able and intelligent assistants, and by previous arrangement, every thing is presented at the proper moment, as if by magic: an example worthy to be followed in the practical details of medicine and surgery*.

In addition to lectures on chemistry, during this second winter must be attended those on materia medica and medical botany, and on the theory and practice of physic. Instead of a second course of lectures on materia medica and botany, two courses on midwifery may perhaps be substituted, as a course of these lectures is generally comprised in a few weeks. Or, midwifery may be deferred to a subsequent season.

The theory and practice of physic have been too long disgraced by technical jargon and artificial distinctions which do not exist in nature, and which, to say the least of them, are useless at the bedside of the patient. To attain correct elementary ideas of the nature of disease, is of the highest importance, as in a great degree influencing the future usefulness of the medical practitioner; and without disparagement to other lecturers, I may be permitted to observe, that the zeal

* Much praise is due to Mr. Farrady, chemical assistant at the Royal Institution. The intelligence and care evinced in all the preparatory arrangements are so great, that failure, in any of the experiments or illustrations, is an extremely rare occurrence.

and ability which have characterized the labours and raised the reputation of Dr. Armstrong, have never been more successfully exerted than in his lectures.

These lectures go far to reduce the theory and practice of medicine to the simplicity of a demonstrative science, and to substitute accurate observation in the place of vague hypothesis; and if the minds of the pupils be duly prepared by adequate elementary education, to profit by these excellent lessons, which contain the results of Dr. Armstrong's unpublished practice, the benefits they are designed to diffuse cannot fail to be realized.

Generally speaking, lectures on the practice of physic are not, however, essentially demonstrative; and could the assiduous attention of the student be as much depended upon in the closet as in the lecture-room, much valuable time might be saved; as it would be absurd to argue, that a mere didactic discourse could not be promulgated by the press, much more extensively than by the most powerful voice. Indeed, besides the unlimited diffusion of knowledge by the press, a printed work possesses the superiority over oral discourse, inasmuch as if any link in the chain of reasoning have slipped, it can be referred to again and again, whilst imperfect recollection of a mere lecture is not so easily supplied: a book may be taken up at convenient times and seasons, and readily admits of more strict analysis than can generally be applied to lectures; for few persons are able to retain in recollection the whole of an hour's discourse, so as to be able to examine it clause by clause. But as custom has consecrated the delivery of lectures (perhaps on the old established axiom, that those things are most valued which are "far fetched and dear bought"), I am far from questioning the right which any one, who has important information to convey, possesses, of using his own discretion as to the mode in which he may be pleased to communicate it.

The student who is desirous of making complete notes of

lectures, cannot have a finer opportunity for the exercise of his ability than in his lectures strictly *medical*.

To render medical lectures fully efficient, there is yet one great desideratum wanting in London, an hospital conducted with strict reference to the teaching of the science of medicine and surgery, viz. *a clinical hospital*. This, I doubt not, will be effected by the genius and philanthropy of Dr. Armstrong, aided by his wonted perseverance; as every upright member of the profession must cordially wish success to so laudable an undertaking.

Practical dissection must form a part of the studies for the second season, although from the variety and extent of occupation, the time to be allotted for dissection must be much less than during the first winter. One hour a day, steadily applied, will not only keep up, but improve, the previous attainments in anatomy. During the first season the natural structure and functions of the body formed the chief objects of attention; these being already rendered familiar, the changes induced by disease ought to be studied; and as the attendance upon the practice of an hospital must now take place, the opportunities of learning morbid anatomy should be sedulously cultivated. The dissections in the dissecting-room should be full, showing the relations of all the parts with each other; and the vessels, for the reasons before stated, should not be injected. The anatomical lectures should also be attended.

In case of deficiency of human subjects*, comparative

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* This deficiency has lately been experienced in so great a degree in London, as to seem to require the interference of the Legislature. Without a competent knowledge of anatomy, surgery is dangerous and impracticable. Who is there who would venture his life in submitting to surgical operation, if he knew the surgeon to be ignorant in anatomy? Besides, as it relates to the practitioner, heavy damages have been awarded against surgeons for error or defect in surgical practice. He is thus placed in the dilemma of being deprived of the only certain mean of acquiring a knowledge of his profession, and yet liable to severe penalties for being ignorant of it.

anatomy may fill up the vacant time. Physiological experiments on living animals may sometimes lead to the improvement of science; but humanity forbids the feelings even of brute animals to be trifled with, and I cannot help fearing that not unfrequently these pursuits have been conducted with greater zeal than soundness of judgment. Before any one can be justified in inflicting tortures (for, although the name may be softened by calling them interesting experiments, the suffering remains the same), he should be well assured that the point he may wish to elucidate has not been already investigated and determined by others; and further, that the knowledge thus sought is really calculated to diminish the sum of human suffering.

Instead of making random experiments without any determinate object, the student may be much better employed, in acquiring precision and neatness in the common, every-day duties of the surgeon, such as a pupil is expected to perform; for the deliberate cruelties are much fewer and less disastrous than those inflicted by ignorance*.

The time which may be allotted for the attendance of an hospital, at this period of study, and consistently with other pursuits, cannot well exceed two hours a day; and these two hours must comprise both the medical and surgical practice, as well as examinations of morbid appearances. The manner in which the medical and surgical duties are performed is of much importance to the student, as example is more powerful

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* It is not twenty-four hours since a medical friend adduced an instance which occurred a few days ago. He had witnessed the dissection of a patient, who had gone to an hospital to be blooded, and who had died in consequence of that simple operation. This fatal termination, he observed, could only result from extremely bad management: the unfortunate patient left a widow, without the means of supporting herself. A student, who was present at the above relation, stated, that at the hospital which he was attending, it was a general remark, that scarcely one of the out-patients who were bled, escaped without the arm festering.

than precept. If he have enjoyed few advantages during his apprenticeship, he follows the plans he sees adopted, the bad as well as the good; but if he have reaped the benefit of judicious early instruction, he is able to discriminate for himself, and uses that which is defective in the practice of others as a beacon to warn him of the rocks on which they have split; or he adopts that which is good as a model for imitation. Punctuality of attendance; considerate and humane conduct to the patients, and attentive observation of the progress of the cases under treatment, are duties too obvious to need comment. During the season he will find sufficient opportunity to acquire a tolerable insight into the routine of hospital practice. I would caution him against running after extraordinary cases and operations. The every-day duties of the surgeon are of more consequence to him; for he is more likely in the early period of his practice, at least, to be called upon to apply bandages; to bleed; to dress wounds or ulcers; to reduce simple or compound fractures, &c. than to perform lithotomy, to make new noses, or to tie the aorta *.

The pupils' fees required and received for hospital attendance in London are sufficiently large to warrant the expectation that the physicians and surgeons should devote a very considerable share of attention to the instruction of their pupils. Whether these expectations be generally realized, or disappointed, I must leave for others to determine: "Palmam qui meruit ferat."

Surgical lectures will also form a part of the present course

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* A practitioner set so high a value on the opportunity for the observation of disease which hospital practice affords, that he continued his attendance for several years after he was well established in private practice. He has often remarked that the more idle pupils wasted their time in gossiping near the fire, and complaining there was nothing in the hospital worth looking at; whilst the more diligent students found so many interesting cases, that they could only spare time to make notes of a small proportion of those which they carefully observed.

of study. These are generally delivered in the evening twice or thrice a week. Some combine the demonstrations of operations on the dead body, with the discourses; others are confined merely to verbal instruction, considering the lectures on surgery as a mere appendage to the anatomical lectures and demonstrations which they deliver. Such are the lectures of Mr. Abernethy. The merits of these lessons are far above any commendation the writer of this paper can bestow, and should, in his humble opinion, be attended by every student in surgery. They contain sound principles of medical and surgical pathology, which are not only highly creditable to science, but the benefits they are calculated to diffuse to those who are suffering under protracted disease, are incalculable, and entitle their illustrious author to the blessings of thousands. I am far from making this suggestion with any view to disparage the lectures of any other surgical lecturer; for I should not recommend the student to limit his means of improvement to the instructions of any one teacher, however excellent he may be, but to avail himself of every source of valuable information which the various schools of surgery afford. Let him store his mind with the facts detailed by his teachers; let him observe and compare the illustrations and reasonings which they adduce; and let him, in the honest search after truth, deliberately analyse and examine them, with all the light which his knowledge of the general principles of science enables him to bring to the investigation; and I will venture to predict, that he will acquire a manly independence of thought on which he may rely in cases of difficulty and danger, very different from that of the mere routine practitioner who does this or that, because Mr. —— or Mr. —— has taught it in his lectures. Lectures either are, or ought to be, reducible to the principles of science and of common sense, and their worth should be estimated by their usefulness. Showy certificates may serve to grace the walls of a country surgery, but are not sufficient to satisfy the more reflecting

part of mankind*. Whilst on this subject it may not be impertinent to relate an incident which occurred since the termination of the last war. A gentleman who had distinguished himself as a diligent student, and had passed several years with credit as a surgeon in the public service, returned after the peace, and resumed his professional studies, with as steady zeal and perseverance as a knowledge of the anxieties, and an exalted opinion of the duties of his profession, could bestow. He had proved the worth of the principles taught by Mr. Abernethy; and now, in the progress of his resumed study, availed himself of every opportunity of proposing any doubt which might remain in his mind on important points of practice. When he had completed what he had intended, relating to his studies, and previous to retiring into the country to establish himself in private practice, he waited upon Mr. Abernethy to request certificates of the lectures and dissections which he had recently attended. Mr. Abernethy, after commending the plan which Mr. —— had adopted, added, "My good friend, take my word for it, the world is become too enlightened to be gulled by certificates now-a-days. You carry with you that which is more valuable than any certificate I can give you,—the knowledge of your profession, which, with your honourable conduct, will ensure your success. Go:" patting him familiarly on the shoulder; "I wish you health and prosperity."

Mr. Abernethy's anticipations have been amply realized. Mr. —— set out with and persevered in the principle, that the healing art merited a higher devotion to its duties than to be perverted into a mere money-making trade, and his conduct has been worthy of imitation. He was thrown in competition

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* An intelligent foreigner remarked respecting a surgeon whose intellectual powers were not very superior, but whose diploma and ornamented certificates of lectures, &c. were pompously displayed in splendidly gilt frames—"The less common sense a man possesses, the more he stands in need of PATENTS."

with those who practised the *trade* to perfection; but who knew next to nothing of the duties. Profits had rolled in upon them, but of the means by which these were produced, perhaps the least said may be the best: those patients whose cases were considered desperate, and whose circumstances were destitute, were civilly recommended to apply to Mr. ——, who was stated to be a good sort of man, &c. whilst they, who recommended, smiled at his simplicity in taking the charge of such cases. The resources of Mr. ——, at that time, were far from affluent, though sufficient for a man of moderate desires. In many of these unfortunate cases he found that the most obvious principles of medicine and surgery had been wholly overlooked; but what was worse, the total absence of adequate support, almost rendered the exercise of medical or surgical skill unavailing. They who have lived in the country, well know the inadequacy of parish relief, where no asylum is kept, and when the pittance allowed is scarcely sufficient to keep the sufferer from actual starvation. Mr. —— humanely supplied the wants of the most distressed amongst these unfortunates, and, by steady perseverance, restored several of them to health who must otherwise have sunk into untimely graves. I had the gratification of witnessing some of these cases, in which the skill with which the treatment had been conducted was only to be equalled by the active humanity which had accompanied it. I shall never forget the blessings which were bestowed by a poor widow, the mother of a family, who had laboured under disease of the knee joint, with sinuses extending far up the thigh, until her health had suffered so much as scarcely to afford a rational hope of her recovery, when she came under the care of Mr. ——. Amputation was performed, as a forlorn hope, and her sinking was prevented by the liberal use of wine and nutritious diet; but this was no momentary sacrifice; for months of anxious labour and great expence, elapsed before she was out of danger. She, however, perfectly recovered.

How much such conduct adds to the respectability and dignity of the medical character need not be pointed out; for who would not be proud to call such a man by the endearing name of friend or brother?

It may be superfluous to add, that Mr. —— is patronised by many of the highest characters in the county in which he resides, enjoying, in addition to an ample and increasing practice, the esteem of the rich and the blessings of the poor; for prosperity has not been able to change *the man*.

It may not be amiss to recapitulate the employment already proposed for this second season.

Chemistry,—one hour thrice a week.
Botany and materia medica,—ditto.
Theory and practice of physic,—ditto.
Practical and pathological dissection,—one hour daily.
Anatomical lectures,—one hour and a half daily.
Medical hospital practice,—one hour daily.
Surgical hospital practice,—one hour daily.
Surgical lecture,—one hour, twice or thrice a week.
Total, four lectures thrice a week = 2 hours daily.

Anatomy.

Dissection - - -	1 hour.
Lecture - - - -	1½ hour.
	=2½ hours.

Hospital.

Medical practice -	1 hour.
Surgical practice -	1 hour.
	=2 hours.
	6½
Remain for reading, writing, meditation, &c. - - -	2½
Total of intellectual labour	9 hours.

In this abstract, lectures on midwifery, and those delivered at the College of Surgeons, and at the College of Physi-

cians, are not particularized. The lectures on midwifery may be substituted for the second course of botany and materia medica; and as they occupy but a very few weeks, two courses may be attended: or, the lectures on midwifery may be deferred until the next season.

The lectures at the College of Surgeons occupy less time than ought to be devoted to the illustrations which the splendid museum attached to the College might seem to require. They consist generally of some half dozen lectures on human anatomy; as many on surgery; and about double the number on comparative anatomy and physiology. Far be it from me to undervalue the instructions which the able professors of this College have it in their power to deliver; for, whoever has listened to the scientific and animated lectures of such men as Mr. Abernethy, Sir Anthony Carlisle, Sir Astley Cooper, Mr. Lawrence, and others, can require no persuasion to induce him to avail himself of every such opportunity. But, however able the professors may be, the time allotted admits of little more than the merest outline of the necessary studies to the surgeon; or of insulated portions, if more fully discussed. The burlesque of Molière's Malade Imaginaire becoming doctor himself, is not more preposterous than the idea that all that is important in surgical education can be compressed into the discourses of twenty-four hours, or even of double that extent.

The liberality of the College of Physicians in respect to its lectures is worthy of commendation and of imitation. The lectures are, as they ought to be, open to the entire medical profession: but, like those at the College of Surgeons, they are too limited in number to have any very considerable influence on medical education.

Arrived at the termination of this second season, the student will now be able to form a tolerable estimate of the value of hospital arrangements, and in some measure to ascertain their excellencies and defects.

It is probable that his health may again require that reno-

vation which country air and change of occupation seldom fail to afford. Previously, however, to leaving the metropolis, he would do well to visit and examine the principal, if not all the public hospitals with which it abounds, and respecting which the work of Mr. Highmore on the Public Charities of London may be consulted with considerable advantage. In this exercise he will probably not experience much difficulty, as his various teachers may be able to give him introductions, or to point out sources from which they may be obtained.

The work above alluded to, and the general professional knowledge which he is presumed already to have acquired, will enable him to direct his inquiries to useful purposes. He will examine and compare the local situations of the various establishments; the proportion of beds to the space occupied; the means for securing ventilation, cleanliness, &c.; the patients the hospital is capable of containing; the medical and surgical officers, and subordinate attendants*; and the customary times of visiting the patients in each department;—the number of in-patients and of out-patients admitted during the year, and the general results, whether favourable or the reverse. The proportion and nature of surgical

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* Perhaps the student may be but little aware how great a proportion of the duties of the physicians and surgeons falls upon the house-surgeon and apothecary. Every patient is *nominally* admitted under some one or other of the physicians or surgeons of the establishment, whilst the actual treatment very frequently rests elsewhere. The student will probably find, that in the provincial hospitals, the house-surgeon receives an adequate salary, with board, &c. for his services; making it worth his while to remain in that situation for several years, and to devote his best exertions to the welfare of the patients; whilst in many of the metropolitan, the house-surgeon pays an exorbitant fee to be permitted to hold the situation for one year. But it should not be said exorbitant; for Hudibras says,

"The value of a thing
Is just as much as it will bring."

operations in a given time, the success in the treatment of severe accidents, such as compound fractures, and the like; the proportion which has been treated by amputation, and the relation of deaths to the number of recoveries, may be inquired into. It may not be improper to obtain a general idea of the expence attending such establishments; the number of medical and surgical students; the amount of fees which they contribute; and the purposes to which these fees are applied. Usually, annual reports are published, containing statements for the information of the governors and others; and when these can be obtained, the opportunity should not be omitted. These are a few of the prominent points of inquiry; but many others, growing out of the above, or which may be elicited by observations occurring at the moment, will suggest themselves to the intelligent student.

He will again visit the various collections relating to natural history and the works of art. The liberality of the private teachers of anatomy in permitting easy access to their museums, some of which are very valuable, cannot be too highly commended. The splendid museum at the College of Surgeons is well worthy of his attention; although the short period of the year, and the limited days and hours, which it is open, even to the members of the College, are but little calculated to diffuse the benefits of such a collection. The British Museum, of course, should be revisited; a portion of time may also be profitably spent in examining some of the arts and manufactures which are carried on in a high degree of perfection in the metropolis. The beauties of nature may be pleasurably enjoyed at some of the villages at no considerable distance from London. The delightful prospect from Richmond Hill, especially in the summer season, can scarcely be witnessed by any of the lovers of nature without a high degree of satisfaction; and the recollection of such visits, associated with the endearments of friendship, or of returning health after severe illness, may be long cherished.

The time intervening before the ensuing October may be

agreeably and usefully spent in travelling and making observations within Great Britain; but whatever may be the principal occupations of these comparatively leisure months, the previous anatomical acquirements must be sedulously preserved, as pointed out in a former part of this essay; by allotting a short portion of each day to this easy and now delightful employment.

The works upon medical ethics may be carefully perused at leisure hours; and such as those of Percival, Gregory, &c. cannot fail to confirm the ardour and devotion of the student to the duties of the profession which he has chosen.

He should avail himself of such introductions to men distinguished by their learning, science, and virtues, and especially those of his own profession, as his previous diligence and good conduct may enable him to obtain. "The conversation of such men will be advantageous to him in many respects; he will acquire from it many ideas: his views will be carried forward to his future life, and he will be made to feel the expediency and necessity of preparing himself for his profession."

During the previous vacation the student was recommended to devote the chief share of his attention to the natural productions; the arts and manufactures of the places which he might visit, making, for the time, his remarks on hospitals secondary to his acquirement of general information: he will now do well to reverse this plan of proceeding: and, having attained that elementary knowledge which is the only secure foundation of medical observation, he will visit the principal hospitals in the United Kingdom, and study their various arrangements and excellencies with all the intelligence of which he may be possessed. To some, the period that he may be able to allot to this exercise may appear to be much too limited; but whoever has read Mr. Cross's admirable Sketches of the medical Schools of Paris (made, I believe, during the short period of six weeks), may satisfy himself, that a mind

fitted for observation is a higher requisite than any duration of time without that qualification.

The arts, manufactures, and natural productions, though now subordinate objects of attention, need not, however, be neglected, when opportunity offers for the investigation of any of them; and the student will find that his previous knowledge of natural philosophy and chemistry affords him facility in tracing cause and effect, from which he derives pleasure and valuable information; whilst the same operations appear to others, whose minds are not thus prepared for observation, tedious and uninteresting.

The medical schools and hospitals of Edinburgh, Glasgow, and Dublin, should be diligently investigated; as well as the various county, and other provincial hospitals, which may not be less productive of improvement. The completeness of arrangement in such hospitals as those of Newcastle upon Tyne*, Derby†, the Wakefield Lunatic Asylum, and many

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* The student may find much valuable information respecting hospital arrangements in general, and those of Newcastle in particular, by consulting a work published by the late philanthropic Dr. John Clark of Newcastle, entitled, "A Collection of Papers, intended to promote an Institution for the Cure and Prevention of infectious Fevers in Newcastle and other populous Towns. Together with the Communications of the most eminent Physicians, relative to the Safety and Importance of annexing Fever Wards to the Newcastle and other Infirmaries. By John Clark, M.D. Newcastle: printed by S. Hodgson. 1802."

† The able work of Mr. Sylvester, the title of which is quoted below, should be deeply studied by every one desirous of increasing the usefulness of medical and surgical hospitals. The inefficiency of dispensaries may be traced, in a great measure, to the want of control over those circumstances which have a more extended influence upon disease than any *medicine* which may be prescribed. How often do we see medicines directed for a miserable being who labours under disease, produced and kept up by the want of clothing, of pure air, and of appropriate diet! It were better to attend to these essential circumstances, and "throw physic to the dogs." A

others, may well be put in competition with the best in the British metropolis. I cannot help being of opinion, that had such institutions as these been examined by the heads of the College of Surgeons in London, the latter would not, nay could not, have insulted the able and philanthropic surgeons of provincial hospitals by rejecting any qualification in knowledge obtained from these excellent schools of surgery, unless the student shall have paid his fee to some metropolitan hospital. Glasgow is admitted as one of the privileged hospitals. I am far from advising that any medical and surgical student should forego the advantages to be derived from the attendance of various and extensive hospital practice; but I would estimate the *attainments* rather than the source from which they have been derived. It certainly must be considered a hardship on a meritorious student, of humble pecuniary means, who may have passed five, six, or seven years of diligent study and observation within the walls of an extensive provincial hospital, and who may be in every respect qualified to perform the duties of a surgeon, to be excluded from examination, unless he have paid the fees of some one of the London or other hospitals pointed out; whilst another student, without any further know-

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badly-conducted hospital is but a very short remove from the inadequacy of a dispensary; whilst an hospital constructed and conducted with all the advantages which humanity and science afford, presents the most favourable combination under which disease can be submitted to efficient treatment, and to the observation of the student.

"The Philosophy of domestic Economy; as exemplified in the Mode of Warming, Ventilating, Washing, Drying, and Cooking, and in various Arrangements contributing to the Comfort and Convenience of domestic Life, adopted in the Derbyshire General Infirmary, and more recently, on a greatly extended Scale, in several other public Buildings, newly erected in this Country; together with an Explanation of the Principles on which they are performed. The whole illustrated by numerous Engravings by W. Lowry. By Charles Sylvester, Engineer. Nottingham: printed by H. Barnett, High Street, and sold by Longman and Co. London. 1819."

ledge of hospital practice than the smattering obtained by *walking** one of the privileged hospitals for a year, shall be considered amply qualified for examination, and, however incapable he may be in the actual practice of surgery, yet, *crammed* for the express purpose, shall pass his *verbal* examination with credit, and obtain that *summum bonum* of his empty wishes,—a DIPLOMA.

Since the preceding observations were written, the College of Surgeons has adopted some new regulations relating to candidates for the diploma†. The restricting of the courses

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* It would not be an unuseful inquiry to ascertain what proportion of the numerous pupils who enter at some of the metropolitan hospitals may be able to catch even a glimpse of each patient on the days on which the surgeons attend. When a hundred or more students are crowding round the bed of a patient, there is little within the observation of those who are behind their companions. The time allotted for the consideration of each patient's case during these rounds, is, perhaps, too delicate a subject to admit of public discussion.

† "*Royal College of Surgeons in London. Court of Examiners: 1st day of January* 1823.

"Candidates for the diploma will be required to produce, prior to examination, certificates—

"1. Of having been engaged SIX years, at least, in the acquisition of professional knowledge:

"2. Of having regularly attended THREE courses, at least, of anatomical lectures, WHICH HAVE BEEN DELIVERED DURING THE WINTER SEASON; and, also, one or more courses of chirurgical lectures; in London, Dublin, Edinburgh, or Glasgow:

"3. Of having performed dissections during two or more courses, IN THE WINTER SEASON, in London, Dublin, Edinburgh, or Glasgow:

"4. Of having regularly attended, during the term of, at least, one year, the chirurgical practice of one of the following hospitals, viz. St. Bartholomew's, St. Thomas', the Westminster, Guy's, St. George's, the London, or the Middlesex, in London;—or the Richmond, or Steevens', in Dublin;—or the Royal Infirmary in Edinburgh;—or the Royal Infirmary in Glasgow:

of lectures on anatomy to those "*which have been delivered during the winter season*," must be felt as a hardship, if not an injustice, both by those teachers of anatomy who have been accustomed to deliver lectures and practical instructions in the summer, and by many meritorious students of limited pecuniary means, who are anxious to qualify themselves for the duties of the profession, and whose diligence not unfrequently exceeds that of their more opulent fellow-students. The thorough inadequacy of mere *verbal* examination to determine the qualifications in a practical art must be obvious to every one who knows what surgery is, and who reflects that to *describe* is one thing, to be able to *perform* is another. It

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"5. And of being twenty-two years of age.

"Candidates under the following circumstances, and of the required age, are, also, admissible to examination.

"Members of any of the legally constituted Colleges of Surgeons in the United Kingdom.

"Graduates in medicine of any of the universities of the United Kingdom; who shall have performed two, or more, courses of dissection, as above specified; and who shall have regularly attended, during the term of, at least, one year, the chirurgical practice of one of the above-mentioned hospitals.

"The above rules are required to be observed by candidates to be examined for the testimonial of qualification of principal surgeon in any service.

"By Order,

"EDMUND BELFOUR, *Secretary*.

"Candidates are to observe that tickets of admission only, will not be received as certificates or evidence of attendance.

"The late regulations, denoted by small capitals, are not designed to operate retrospectively; therefore, persons who have attended two or more courses of anatomical lectures prior to the 1st of January 1822; or who have attended three or more courses of such lectures, although they may have been delivered during the summer months, prior to the 1st of February 1823; or who have been engaged in the study of the profession five years prior to the date of these regulations, will be admitted to examination as heretofore."

has been known that a nerve contiguous to an artery has been tied instead of that artery, and the unfortunate patient has bled to death, in consequence of that dreadful error. No doubt the surgeon who committed the fatal mistake could *describe* the mode of tying the artery which he failed to secure: neither is it probable that the surgeon whose amputation has been before alluded to (page 53), could not describe the mode of performing the operation.

It may, however, be assumed, that the *verbal* examination at the College of Surgeons either *is*, or *is not*, a sufficient test of surgical ability. If the former be admitted, that such examination *is* a sufficient test, what can be the necessity for vexatious restrictions? Is it not sufficient to determine whether the candidate actually possess the knowledge and ability necessary to perform the duties of surgery?

If the candidate really possess the necessary knowledge and ability, what, in the name of common sense, can it signify, whether his knowledge has been acquired in summer or in winter, in provincial or in metropolitan hospitals? Will his knowledge be less efficient in the cause of humanity, on account of its having been drawn from the one source or from the other?

But should any one be driven to the conclusion that such examinations *are not* adequate tests of practical knowledge and ability, let him uphold that the same number of hours applied to dissection in a clear summer's morning are far inferior to the like number in a dull foggy day in winter; and that there are no sources of surgical knowledge, save and except those few particularized by the Court of Examiners!

The commencement of the third year of study having arrived, the student is supposed to return to his labours with renovated health and sufficient enthusiasm to overcome every surmountable obstacle. It has been well observed, that "virtuous enthusiasm, that enthusiasm which has in all ages animated men to the greatest exertions, that enthusiasm which has made patriots, orators, and real heroes, is nothing more

than the strong, resolute, permanent action of the will, in obedience to the impulse of moral conviction, or to the dictates of the understanding."

Before the student determine upon his employment for the season, let him institute a rigid self-examination into his acquirements and deficiencies. He will probably find that his anatomical knowledge is the only part which he can review with satisfaction; that his physiological knowledge is in many points imperfect; and that although he has diligently attended the instructions of his medical and surgical teachers, has learned the technical nosological arrangements in common use, and has attended the medical and surgical practice of a metropolitan hospital for a year; yet that at the bedside of the patient he is, not unfrequently, utterly at a loss to make his nosological definitions and the symptoms agree—some are wanting—others are superadded—so that he is bewildered; and with all his instruction, he has never been taught to investigate disease so as to represent clearly to his own mind, what are the parts or organs of the body which actually deviate from the state of health; what is the nature of the derangement which they suffer; nor to deduce, from these simple facts, principles of treatment rationally adapted to the restoration of health! He has indeed witnessed many cases of recovery to take place without any rigid investigation of the nature of the disease, for the salutary efforts of nature are, in many instances, sufficient to effect recovery without assistance from art; but it is also probable that he may have witnessed, with sorrow, in examinations made after the death of the patient, that the disease had not been, during the *life* of the patient, understood; that the disease was in its nature remediable; and that probably a greater degree of diligence in investigation, aided by the resources of general and medical science, might have led to the discovery of the nature and extent of the malady, in time to preserve the life of a fellow-creature. What must be the anguish of a feeling mind to reflect that he was the person on whom the patient relied for

safety; and that his want of skill had been the passive cause of an untimely death, which might have been averted! Would to God that instances were less frequent! The intricacies and complications of disease are so numerous, and the sources of error so many, that such a case may occur to him who, deeply impressed with the trust reposed in him, is most anxious to fulfil his duty. Were examinations after death universally instituted, many useful lessons might be deduced, many improvements in the healing art be effected; but many there are who would rather that the grave should conceal the errors of their practice, than that those errors should be exposed, either for the improvement of themselves or of others. But of those who anxiously seek, in pathological investigations, every opportunity of confirming or of correcting their practice, he who has most extensively investigated is the most likely to be taught humility; for fifty confirmations of every essential particular, as to the nature and extent of those diseases which have proceeded to a fatal termination, aided by the cordial approbation of conscientious friends, will not compensate the anguish he must feel on discovering that one single case had been misunderstood in any essential circumstance; and he must either be profoundly ignorant, or endowed far beyond the common lot of mortals, who can suppose that he alone is incapable of error. Infallibility belongs not to mortals. In medicine no one is entitled to wear the triple crown.

The student anxiously inquires, What shall he do to avoid these errors and reproaches? The faithful student may be comforted. If he have already exerted his most diligent efforts to learn his profession, he may, through the want of an intelligent guide to direct his labours, have wasted much valuable time, and have acquired but slender information. Even if it be so, he should not despond; unwearied diligence is of paramount efficacy; and he may be aware, that whoever goes on uniformly improving, even at the slowest rate, must in time excel those who remain stationary, let their positive acquirements be what they may: but by judicious and

methodical arrangement his labours may be not only shortened, but associated with the delight of conscious progress in useful knowledge.

From what has been already observed it will be apparent, that a competent knowledge of the structure and functions of the human body in its healthy state is indispensably necessary to the knowledge of diseases. Simple and self-evident as this axiom may appear, the neglect of it may be traced in almost all the numerous errors in the practice of medicine and surgery which, unfortunately, may be so often witnessed. A man who should attempt to correct a complicated arithmetical computation, without previous acquaintance with the value and relation of figures, would be scouted for his folly and presumption; whilst it is to be feared, " the mystery of physic " frequently conceals folly and presumption which would be equally glaring, if submitted to the test of science and of reason.

But, however qualified the student may be in elementary and scientific attainments, the investigation of disease is often rendered extremely difficult by the imperfect and sometimes false accounts which patients give of the symptoms and progress of their illness. The simulation of fits, for the purpose of extorting charity, or of obtaining discharge from public service, is no uncommon artifice; whilst in cases of syphilis, pregnancy, &c. there is often the most steady denial of facts. But the wilful deception thus glanced at is not all the difficulty; for it happens continually, that others, who have no actual intention to deceive the medical men to whom they refer, are yet so far misled by their prejudices, their wishes, or their fears, that they give a false colouring to their statements, calculated to mislead any one who does not strictly examine in what degree they accord with the circumstances which present themselves.

Although the accurate observation of facts will be found a most essential part of the investigation of disease, yet much more is necessary to arrive at just conclusions. It is far more

difficult to trace effects to their causes, than to observe facts presented to our senses *.

The effects are frequently obvious, whilst the causes can only be learned by a series of inductions which cannot be made, unless the mind of the observer be previously stored with the requisite scientific and general knowledge; to which should be added that of mankind. In the diseases of the poor the causes shall be often found in the nature of their employment, which mere medicine can do next to nothing to abate; although the noxious cause may admit of easy correction, by a moderate share of science adapted to the existing circumstances †. Such improvements may serve to show the study

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* "It may be apparent that the demands from the various conditions of persons in society do not admit the whole of our profession to become philosophers; but I will venture to affirm, that no man is competent to estimate the evidence of even a human pulse, in order to inform himself of the state of a disease, or to guide his judgment in prescribing remedies, unless he perfectly comprehends the circulation of the blood, and has been habituated to consider the different indications of a throbbing artery; yet this slender rationale is a step above the sceptical empiric, who entertains no belief beyond the reports of his senses."—*The Hunterian Oration, delivered before the Royal College of Surgeons in London, on Monday, February* 21, 1820. *By Anthony Carlisle, F.R.S. F.S.A. F.L.S. &c.*

† It will be sufficient to mention the pernicious effects of lead in white-lead manufactories;—of the fumes of mercury, in what is called water-gilding;—and of particles of steel in dry-grinding.

In an extensive lead-factory in the vicinity of the metropolis, in which the colic peculiar to such places was formerly very prevalent, that disease has become so rare, that medical assistance has not, for some years past, been required. Many have supposed that the fumes of the lead induced the disease; but the remedy was found by tracing the cause to a more direct source. Workmen are seldom very strict in regard to cleanliness. The probability of particles of the mineral being conveyed from the hands amongst the food was suggested, and an order enforced, that before any of the workmen should leave the factory to go to meals, their hands should be thoroughly washed, and that nail-brushes should be used to prevent

of the various manipulations in the arts previously recommended, as a part of general knowledge, not to be without its use.

In the higher classes of society, the mind exerts almost as decided an influence over disease, as the particular employments, situations, &c. exert upon the poor.

The investigation of disease will be much facilitated by the adoption of a certain order and method which shall prevent the omission of any essential circumstance in that sort of analysis of all the principal organs of the living body, and of the functions which they perform, which may (as far as the present extent of science will permit) enable the student or practitioner to ascertain any existing deviation from health.

It may be observed, that to the student who has yet to acquire precise knowledge of disease, a much more minute and extended analysis of each case will be necessary, than may be required for the experienced physician or surgeon, to determine the nature of the disease, and the appropriate treatment. But though I am aware that it must be impracticable to investigate thus completely and methodically the numerous cases which are prescribed for, in actual and extensive practice, yet I have experiencd so much satisfaction from the sedulous examination of intricate instances of disease, regardless of the time which such examination might require, that I cannot too strongly inculcate so beneficial a procedure; as it has often conduced to a degree of certainty respecting the nature and

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any of the lead remaining where it was most likely to adhere. The success of this plan, under strict superintendence, has been complete.

The dreadful effects of water-gilding have been averted, in France, by judicious ventilation.

The efficacy of magnetism in guarding against the evils of dry-grinding (one of the most common of which is consumption), by the invention of Mr. Abraham of Sheffield was so fully established, that the Society for the Encouragement of Arts, Manufactures, and Commerce, rewarded Mr. Abraham with their large gold medal.—(See Vol. XL. of their Transactions, 1822.)

extent of the disease which I should never have been able to attain by hasty, commonplace inquiry; and further, the advantage to the patient has been so considerable, as amply to outweigh any sacrifice of time which might have been more lucratively employed.

Even when the disease is of such a nature as not to be removed by any remedial means at present known, it will prove consolatory to be aware that the fatal termination may often be long averted by judicious palliative treatment; whilst a just prognosis is the only safeguard to the reputation of the physician or surgeon who is called upon to treat irremediable disease.

The plan which I have adopted has been—first, to learn, as far as the patient or friends could inform me, the history of the disease, from its commencement to the time of observation.

Secondly, to examine carefully the present state of the patient; and if any doubt remained in my mind respecting the disease, to retrace the examination of each organ that appeared to have had any share in the malady, to the period of the first deviation from health.

The peculiar habits and mode of life form important considerations, and may be more pointedly investigated after the symptoms have been ascertained than before; as particular symptoms frequently lead to the detection of errors in general management which might otherwise escape notice.

Having satisfied myself, as far as may be practicable, of the symptoms, the question occurs, What organ, or organs, are affected? What is the nature of the disease? If more than one organ be affected, what part was originally deranged; and what secondarily, or dependent upon the first? With what other diseases is it likely to be confounded? Hence the *diagnosis*.

These necessarily lead to the further inquiry, Is the disease in its nature remediable or not? What is likely to be the future progress? Hence the *prognosis*. By what means can

the disease be arrested or removed? In this consideration the general circumstances should be first determined, comprising diet, exercise or rest, clothing, temperature, &c.; and these are at least as important, if not more so, than the treatment by medicine only. These being arranged, the strictly medical or surgical treatment follows.

The student should not content himself, if he happen to have the charge of a patient, by ordering a farrago of stuff from a *vade mecum*, or other compilation; but should reflect upon the indications of treatment, and how these can be best carried into effect. Above all, do not let him deserve the sarcasm, attributed to the late Dr. Gregory, too often merited, that "It is easier to prescribe than to think."

I have found printed forms, containing blanks to be filled up with the data above alluded to, a great convenience; as they confine the attention to the particular point under inquiry.—(See Table I. *Diseases of Adults**.)

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* It may be mentioned that the size of the page which this table occupies is much too small for practical use. Those which I have employed have been of the quarto size, large paper. The left column only was printed, leaving the remainder of the page for the particulars to be stated in manuscript. This I found sufficient for my own reference. The observations relating to the sexes were only occasionally required, and were easily added when necessary.

The reasoning and inductions will seldom be committed to writing by those who are much engaged in practice; and for private use it may rarely be necessary; for the facts and the conclusions being comprehensively stated by the individual who has deduced the inferences from the premises, he will readily recur to the same process; although another person might perhaps come to other conclusions from the consideration of the same facts. Still, however, I would advise the student to reduce his reasonings to written language, and have therefore inserted the questions in the table, that no material circumstance may escape his notice.

TABLE I.—*Diseases of Adults.*

(1) Date 18

NAME (2) Age (3)

Occupation (4)

Residence (5)

HISTORY (6)

Assigned cause (7)

GENERAL OBSERVATIONS (8)

Person (9)

Mode of living (10)

PRESENT STATE (11)

Position (12)

Countenance (13)

Eyes (14)

Skin (15)

Tongue (16)

Appetite (17)

Bowels (18)

Biliary secretion (19)

Urine (20)

RESPIRATION (21)

Full inspiration (22)

Voice (23)

Cough (24)

Expectoration (25)

CIRCULATION (26)

Pulse (27)

Local determinations (28)

Senses (29)

State of mind (30)

Sleep (31)

Idiosyncrasies (32)

Examination of the regions of the body, &c. (33)

Other symptoms (34)

GENERAL DIRECTIONS (37)

Diet

&c.

TREATMENT (38)

Prognosis

OBSERVATIONS RELATING TO THE SEXES (35).

In the Male,

Symptoms or peculiarities.

In the Female,

Uterine functions, &c.

Menstruation.

Period at which menstruation first took place.

Period of cessation, if arrived or past.

If married, the No. of pregnancies.

No. of births at full period.

No. of abortions.

Whether children suckled by mother.

State of the mammæ.

Other symptoms.

REASONINGS AND INDUCTIONS (36).

What is the affected organ?

Are more organs than one implicated?

If more than one, what are the *essential*, and what the *accidental* circumstances?

Can the cause of the disease be certainly traced?

What functions are deranged?

What is the nature of the disease?

Is there any derangement of structure?

To what other diseases does the present bear analogy, so as to endanger error?

What are the grounds of diagnosis?

——————— of prognosis?

Is the disease remediable?

What are the indications of treatment?

By what means can these indications be fulfilled?

It may not be superfluous to glance at the heads of this form for the first investigation of clinical cases.

(1, 2, 3.) The date, name, and age, require no comment.

(4.) The occupation, as has been before remarked, is often intimately connected with the malady.

(5.) The residence is also a subject for examination. The influence of marsh miasmata;—of confined situation; of noxious manufactures, &c. must be obvious.

(6.) The history forms the first groundwork for the full examination, and gives the proper direction to the particular inquiries. A skilful physician or surgeon carries the confidence of the patient along with him by the facility with which he traces cause and effect; and the direct reference which his questions bear to the malady, assures the patient that his case is understood. Not unfrequently the forcible though uncouth description in the patient's own words, conveys a more vivid impression than more refined language. The patient having stated all that he wishes to relate, deficiencies may be supplied by directing his attention to the points of omission.

Some are apt to suppose that the full investigation of any given case is a waste of time. I believe that the practitioner who is anxious to discharge his duty faithfully, will find the fullest investigation the greatest economy of time; for when the disease is once clearly ascertained and understood, the subsequent inquiries may be confined to the progress from one examination to another; whilst, with imperfect conceptions and confused notions, there is an endless repetition of the same unmeaning inquiries.

(7.) The assigned cause. The causes which patients assign are frequently vague and erroneous; but though the patient's opinion of the cause of his illness should not be adopted, it is useful to be aware of it, and to give it a candid examination.

(8.) General observations. The stature; the fulness or ema-

ciation; complexion; and many other individual peculiarities may be directly or indirectly connected with the disease.

(10.) The mode of living has much to do with the production and continuance of disease.

(11.) The *present state* of the patient necessarily comprises every circumstance that may be submitted to the examination of the senses. Many indications of disease may be drawn from the position (12) and countenance (13). These are familiar to the experienced eye, though seldom recorded or even reduced into words. Nothing is more common than to jump as it were from premises to conclusions, without attempting to trace the operations of mind which lead to the conclusion. Hence the use of tables, aphorisms, &c. The school-boy or the merchant, who repeats "twelve times twelve are one hundred and forty-four," never thinks of going through the detail of demonstration, although for the purpose of instruction the teacher must explain step by step. But to return from this digression: It has been observed by an author whose writings are highly calculated to afford greater precision to the healing art, that "in the study of the external character of diseases, no circumstance which can become the subject of observation can be considered as unimportant; but, on the contrary, every source of judgment should be carefully sought and investigated *."

How dissimilar are the countenance (13), eyes (14), and skin (15) in phrenitis, in certain states of fever, in jaundice, inflammation of the bowels, bronchial inflammation, and many other diseases which might be enumerated!

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* Consult Dr. Marshall Hall "On Diagnosis." The *first* and *second* parts of this able work were published in 1817, with a notice that the *third* part would be ready in the course of three or four months. It must be subject of deep regret, should any want of encouragement have deterred the author from completing so laudable an undertaking. I have not been able to learn that either the third or fourth part has been published.

The nutritive organs and their functions are so important as to require strict attention in almost every instance of disease. How closely they are implicated in diseases or injuries considered purely local, has been most ably illustrated by Mr. Abernethy in his lectures and writings.

The tongue (16), fauces, &c. may be regarded as an index to the internal viscera, lined by a continuation of the same membrane, which cannot be submitted to ocular examination in the living body.

The appetite (17) connected with the state of the tongue, &c. may indicate the degree in which digestion shall be perfect or imperfect.

The bowels. The digestion of the food may be further investigated by the manner in which the bowels (18) perform their office. The number and frequency of the evacuations, their appearance, &c. are not unworthy of attention.

The biliary secretion (19) may be inferred, in a great measure, from the above circumstances, joined to the appearance of the urine.

The urine (20). The various properties of the urine have been shown to be extremely necessary to be considered as indications of health or the contrary. The able works of the late Dr. Marcet, of Dr. Prout, and others, show the benefits which result from the application of the modern science of chemistry to the investigation of disease.

Respiration (21). The importance of a function without which life cannot be supported, even for a few minutes, must be too obvious to require elucidation. The diseases affecting the organs subservient to this function, are perhaps as frequent and as severe as any that form the subject of medical investigation, and require accurate observation and careful induction. The variety of symptoms, according to the seat or intensity of the malady, must have struck every observer, whose opportunities have been considerable. How different are the indications of disease in the lungs from those affecting the larynx; and yet, difficult as it may at first appear, how near an approxi-

mation to the true state of these organs may be attained, even in the living body, when the mind of the observer is adequately prepared for observation! I may mention, as materials for thinking, the symptoms and state of the parts in inflammations of the larynx;—of the trachea;—of the lining or mucous membrane of the lungs;—of the substance of the lungs;—and of the investing membrane or pleura. Each of these has its peculiar signs; frequently, however, the various parts are simultaneously or successively implicated. What is more common than for inflammation to be observed, first affecting the lining of the nostrils, and producing sneezing and watery secretion; then the throat becoming affected; then the larynx and trachea, cough supervening by the irritation of these parts; and subsequently the lining membrane of the lungs throughout its whole extent, attended by copious secretion of mucous or of puriform fluid which is expectorated? In mild cases, when under favourable circumstances of temperature, diet, &c. the expectoration diminishes, and the patient recovers. How often, on the contrary, under the unfavourable influence of disordered general health, after exposure to cold, or other causes, do aggravations ensue; the secretion increasing, so as to fill up the air-cells and passages, and thereby preventing that change of the blood which is essential to the support of life! Thus the patient sinks livid, cold, and suffocated; dissection affording demonstrative proof of the condition above described. This state does not, although the air-passages, &c. be filled with pus, necessarily imply ulceration; for it often takes place when no ulceration can be discovered on the most careful examination. Again, how different are the symptoms which characterize ulceration about the larynx (for very nearly similar effects are produced by ulcers in the immediate vicinity as when the larynx itself is the seat), and those destroying the substance of the lungs, as in consumption! How speedily fatal the former, unless relieved by art; how gradual and lingering the latter! The same difference in progress may be observed between the acute inflammations of the larynx or

trachea, which sometimes terminate life in a few hours after their accession; and the chronic inflammations existing for years, and commonly called asthma*. But the limits of this paper will not admit of entering into further detail than may appear necessary to direct the attention of the student.

The frequency of respiration; the manner in which it is effected, whether without effort or with difficulty; and the relation which it bears to the frequency of circulation, as indicated by the pulse, should in all cases be observed.

Full inspiration (22) may be effected with or without pain; or it may be impracticable; or may induce coughing. A patient feigning illness may be sometimes detected, by observing how far the required attempt to make a full inspiration corresponds with the spontaneous distention of the chest, which may take place or be induced without the consciousness of the patient.

It is worthy of remark in many cases, nay generally, when there exists inflammation of the mucous membrane of the bronchia, without the substance of the lungs or the pleura being implicated, that the patient can without pain distend the chest by the fullest inspiration; and yet, in severe instances, the function of respiration may be so imperfectly performed, that the patient shall beg for fresh air, and labour under sensations approaching to those of suffocation; whilst the cold, clammy, and livid skin, combined with the mucous rattle in the air-passages, evinces the extreme danger of the case, unless it be timely averted.

The voice (23), as well as the mode of respiration, affords a great variety of indications relating to disease, particularly when the larynx is affected; as by the voice, and by the man-

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* Many cases called asthma are dependent on enlargement of the large blood-vessels, which press mechanically upon some part of the organs of respiration.

ner in which deglutition is performed, we are led to inferences not likely to be arrived at without such observation*.

When cough exists (24) it affords, in conjunction with other symptoms, considerable assistance in the discrimination of disease of the organs of respiration. It may suffice to notice the almost whispering cough in some inflammations of the larynx; the hoarse, trumpet-like sound in croup; the shrill inspirations in hooping cough; and the deep hollow tones frequently observable in consumption.

The expectoration (25) when present is well deserving of attention. It may be simply mucous, or it may be purulent; or may be mixed. It may in consistence be fluid or tenacious; frothy or solid; in colour, clear or bloody; or of

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* An unhealthy child had measles, and the inflammatory symptoms relating to the larynx were strongly marked. By great care these were so far subdued, that, had the child been in tolerable health before the attack, recovery might have been confidently expected. A new train of symptoms arose, the voice was peculiar and subdued, and the cough which had during the previous state been very frequent, scarcely occurred except in violent paroxysms at uncertain intervals. On desiring that some mild drink might be given, to ascertain how deglutition was performed, the paroxysm of coughing was renewed with a degree of violence threatening suffocation. On calling the mother's attention to this circumstance, she recollected that the fits of coughing had occurred when food had been offered. It was further observed, that food in a state of pulp excited less irritation than liquids, however mild the latter. The paroxysms became more and more frequent, and the child sunk under the disease.—What could be the cause of these symptoms? The physiological pathologist will readily trace the connexion between cause and effect, and will infer that ulceration must have succeeded inflammation, as often happens in unhealthy subjects:—the office of the valve not being performed, so as to protect the glottis from the contact of food or drink, he may conclude that the *epiglottis* was the seat of the mischief. The case was witnessed by my friend Mr. Charles Haden, of Sloane Street, and others, who concurred in the opinion thus formed, which was fully verified on dissection, great part of the epiglottis having been eroded by ulceration.

various shades from light yellow to green or dark grey; sometimes mixed with extraneous matter, as soot, inhaled with the air. It may be fetid or inodorous;—specifically lighter or heavier than water. The quantity expectorated in a given time admits of great diversity. Some may, perhaps, consider such minute distinctions as too unimportant; but I would suggest, that if the welfare of those whose health may be intrusted to their care be not a sufficient motive to avail themselves of every source of information, it may happen that an erroneous prognosis may destroy an unmerited reputation; and show that ascertaining whether a disease be certainly remediable, or beyond the present remedial powers of the healing art, is not quite a trifle: moreover, it is only on correct views of disease that rational treatment can be founded.

The mode of investigation of diseases of the chest adopted by M. Laennec*, when pursued with competent attention to the history and symptoms of each case, affords in many instances a certainty of diagnosis which the mere casual observer may suppose to be quite Utopian. If the inference to be drawn from feeling a pulse require the elementary foundation alluded to in a former page, it cannot be supposed that an examination of a human thorax by means of an acoustic instrument to ascertain disease, should be so simple as to be at once acquired by those who have never taken the pains to learn what are the indications of health, when thus examined. Hence it has been known, that physicians and surgeons have condemned the instrument, without ever having put it fairly to the test; whilst others have been both delighted and instructed by the use of it; and consider M. Laennec to have conferred an essential improvement towards the investigation of disease.

"* De l'Auscultation médiate, ou Traité du Diagnostic des Maladies des Poumons et du Cœur, fondé principalement sur ce nouveau Moyen d'Exploration. Par R. T. H. Laennec, D. M. P. Medecin de l'Hôpital Necker, &c. &c. A Paris, 1819."

The instrument which he calls a stethoscope, has been so often described in the periodical works of the last two or three years, that I need only refer the reader to Mr. Laennec's excellent work; or, if he prefer it, to the English translation by Dr. Forbes*. By this instrument may be ascertained, whether the whole or any considerable part of the lungs be pervious to air or obstructed;—the existence of ulcerated cavities in the substance of the lungs;—effusions into the cavities of the chest; &c. The action of the heart, and the relative state of the great blood-vessels, may also be more accurately investigated by the help of this instrument than by any other means with which I am acquainted†. But he who trusts to any single symptom,

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* "A Treatise on the Diseases of the Chest; in which they are described according to their anatomical Characters, and their Diagnosis established on a new Principle, by means of Acoustic Instruments. With Plates. Translated from the French of R. T. H. Laennec, M. D. With a Preface and Notes, by John Forbes, M. D. 8vo. 1821."

† In several instances in which the symptoms were such as to leave no doubt in my mind that enlargement of some of the great blood-vessels existed within the thorax, I have been enabled to trace the extent of derangement more accurately by means of this instrument; and it has been a source of confidence both to myself and the patient to be able to ascertain from time to time that diminution of preternatural pulsation (under the use of such remedial means as tended to diminish the force of the circulation), which marked the progress towards returning health. It is a dangerous error to consider such cases as hopeless; if they be carefully investigated, it will generally be found that they originated under circumstances, which excited the heart's action to an extent more than equal to the powers of resistance in the artery. Let timely attention abate the cause, and the effect will gradually subside. Even in cases in which the enlargement was too obvious to be doubted, and the humble stations in life of the individuals have precluded that absolute rest which forms one of the best remedial means; yet by watching and early treatment under any increase of symptoms, years have passed away in the enjoyment of a very tolerable state of comfort.

or to any exclusive mode of inquiry, without duly considering all the circumstances of each case, will experience frequent cause of regret *.

The circulation (26) should be as strictly observed as the respiration. The pulse (27) is by some too exclusively relied on, and by others too little observed. Its force, frequency, and peculiarities should not be overlooked.

Local determinations (28) exist in a greater or less degree in all inflammatory diseases, and when ascertained afford obvious indications for the treatment. Dr. Parry's Elements of general Pathology contain many valuable observations connected with this subject.

The manner in which the senses (29) are acted upon by external agents should be observed. The various indications from this source will be appreciated by any one who has carefully watched the changes which take place in injuries of the head; in the different stages of hydrocephalus; in phrenitis; in apoplexy; &c.

The state of mind, as has been above intimated, exerts a powerful influence upon disease †.

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* Thus I have known aneurism of the aorta, by its pressure upon the trachea, produce a train of symptoms which were considered by a very intelligent physician to be those of *laryngitis*, although the larynx, on dissection, was found perfectly free from disease. Now, although insulated symptoms might afford presumptive evidence of affection of the larynx, I cannot avoid believing that sufficient ground of distinction might have been found, by diligently studying and reasoning upon the entire circumstances of this case. The history, both in duration and in the manner in which the urgent symptoms supervened, was essentially different from that of laryngitis. But far be it from me to hold up the errors of others to censure; my only object in alluding to this case being to inculcate the advantage, nay, the absolute necessity, of strict and patient attention to every circumstance which may conduce to the forming of a correct judgment.

† I have known a case of compound fracture, in a public hos-

The sleep (31) may be insufficient or excessive, tranquil or disturbed, &c. and the observance of it may frequently assist in forming a just prognosis.

The idiosyncrasies (32) of a patient, of whatever kind they may be, should be known to the medical practitioner, and be duly considered before he directs the treatment.

But the examinations of separate organs and functions above alluded to, although of great importance, is not all that is necessary in the investigation of disease. The various regions of the body (33), as the head, neck, chest, abdomen, and the extremities, should be more or less fully examined according to the nature of the case under consideration *.

Any anomalous or other symptoms (34) omitted in the previous examinations, may be stated.

In diseases relating to the sexes, further observations (35)

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pital, in most favourable progress towards recovery, and the patient confident with hope, suddenly assume an opposite character, the patient having become desponding in consequeuce of the unguarded exclamation of an ignorant pupil, that the limb could never be cured! The unfortunate patient died.

* In surgical diseases this examination is generally indispensable. It will be more or less efficient according to the previous attainments of the student or practitioner. How many errors might be thus prevented! It has occurred that a patient has laboured for years under the despondency of a supposed incurable disease, by a swelling observed in the left side having been pronounced to be a disease of the ovarium; whilst by a more efficient examination it was ascertained that the supposed tumour was contained in the colon, at its sigmoid flexure, although the whole course of that intestine was preternaturally distended. By appropriate treatment numerous alvine concretions were evacuated, the tumour has disappeared, and the patient has regained her health and spirits.

It is but a very few weeks since a fatal case of strangulated hernia in a public hospital, was overlooked and treated as simple obstruction of the bowels, until the time for affording relief was past.

may be necessary; but, as I have noticed the heads of examination in the right hand column of the table (page 82), it is not needful to enter into further detail.

The inquiry respecting the facts and circumstances of any given case having been thus far conducted, the student will do well to trace the reasonings and inductions (36) indicated in the table, as he would follow the steps of a mathematical demonstration; he may then proceed to the treatment.

The treatment admits of a simple division into general directions, and medical or surgical means. The general directions (37) relate to diet, clothing, air, exercise, or rest, and the various means which it is presumed the patient or his attendants may carry into effect.

The medical or surgical treatment (38) should be fully stated; for success often depends upon the detail as much as upon the general plan. It will be obvious to the reflecting mind, that the treatment seldom presents much of difficulty, if the nature and circumstances of the case be thoroughly understood. The more competent any one may be to conduct the treatment successfully, the more simple and direct will the means be found which he adopts to fulfil the rational indications of cure. On the contrary, the muddled, not to say addle-headed prescriber, in whatever department of the profession he may happen to move, has an inexhaustible store of unmeaning and absurd complexities, resembling nothing so much as his own confused notions. Several years ago Mr. now Sir Astley Cooper, in congratulating one of his pupils on being appointed to the medical care of a public establishment, observed, that in such a situation a man must either do much good or harm, according to his knowledge or ignorance of his profession; and that the treatment was almost always easy to one who knew what he was about; adding, "for, if you ascertain the disease, any tyro can tell you the treatment."

When the first investigation of any given case has been thus

fully made, an abstract or abridgment of the essential circumstances will form an useful exercise for the student, and a valuable record.

The subsequent history of the progress of each case may be for the most part limited to the changes which take place, and the registration of essential symptoms. Still, however, it will be useful to repeat the full investigation at such intervals of time as may be deemed necessary.

The abstract should be carefully examined, and be completed as soon as convenient after the termination of each case; and such remarks be added as may elucidate the action of remedies, or explain any important circumstance.

The Diseases of Children are of paramount importance, as the future comfort, health, and even existence of the individual frequently depend upon the skill exerted in the management of disease in infancy. The investigation of them demands, if possible, a more strict observance of all the circumstances of each individual case than is required in the diseases of adults. The inability of infants to describe in words their feelings or sufferings must be compensated by the more careful inquiry into every particular capable of throwing light upon the nature and extent of the malady.

The limits of this paper will not admit of entering into details relating to this subject; and after having so fully indicated the mode which I have found useful in examining the diseases of adults, such detail becomes less necessary; as the intelligent student will readily adapt his inquiries to the existing circumstances of any individual case. To assist those who may not have leisure or inclination to arrange a plan for this purpose, I annex a blank form, containing suggestions relating to the diseases of children, which I have used, as I believe, with considerable advantage. I am aware that it is imperfect, and therefore offer it for others to improve upon. It was arranged for private use, without any reference to publication.

TABLE II.—*Diseases of Children.*

Date 182

NAME Age

Residence

Nursed by

Food

Clothing

PREVIOUS DISEASES.

HISTORY OF PRESENT COMPLAINTS.

PRESENT STATE.

Complexion

Eyes

Hair

Head

Chest

Belly

Limbs

Ossification

Muscles

Skin

Texture

Colour

Temperature

Moisture or dryness

Eruptions

COUNTENANCE.

Eyes

Vascularity

Pupils

Position

Gesture

Senses

Sleep

Temper, &c.

RESPIRATION.

Full inspiration

Voice

Cough

CIRCULATION.

Pulse

Local determinations

NUTRITION, &c.

Appetite

Saliva

Tongue, &c.

Dentition

Bowels

Excretions

No.

Colour

Consistence

Smell

Urine

Intellect

Dentition began

Began to walk

Idiosyncrasies

Assigned cause of present illness

GENERAL DIDECTIONS.

Diet

Clothing

Temperature

Exercise

TREATMENT, medical or surgical.

Prognosis

It may be thought by some that this table is redundant; whilst others may entertain an opposite opinion *.

The diseases which are usually termed *surgical,* in addition to the investigation of any general derangement of the system, require strict attention to local examination, as has been noticed in relation to the diseases of adults.

Pathological anatomy cannot be too highly valued as leading to improvement in the healing art. But to derive the full benefit which it is capable of affording, demands a large sacrifice of time;—of time too at that period of life when it becomes most important; for it is not until the judgment be matured, that the mind is likely to dwell with sufficient intensity upon lessons, which even to the best disposed, must sometimes be those of disappointment and humiliation.

It is much to be regretted that the records of pathological investigations should be so incomplete as to afford little or no certain information of the state of some parts essential to the due performance of one of the vital functions. Take, for example, the condition of the organs of respiration, and particularly that of the air-passages;—where are to be found the histories and dissections of cases, on any extensive scale, in which these parts have been fully and accurately examined †?

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* I am obliged to Mr. Callow, late Surgeon, 20th Dragoons, whose *tact* in the investigation of disease I have had much pleasure in observing, for suggesting that the period at which a child begins to talk should also be noted. Mr. C. observes, "I have been accustomed to conclude, if a child is found not to talk till long past the usual period, or that he continues to do so very imperfectly, much later than other children, there is organic defect, and most probably that defect exists in the sensorium."

† Some time ago I endeavoured to solicit the attention of my professional brethren to an important class of diseases, in which the organs of respiration claim the most attentive consideration. See "Observations on the Inflammations of the mucous Membranes of the Organ of Respiration," published in the Medical Intelligencer, vol. i. 1820.

Examine the recorded pathology of fever, a disease respecting which more volumes have been written than perhaps on any other, and many of which display great learning and ability—much ingenuity in hypothesis; but whither can we turn and find, accurately and fully detailed, the state of the air-passages and of their lining membranes? What is their condition in that form designated "congestive fever?" what in cholera? in the plague, &c.? diseases extensively destructive of human life, and of the actual pathology of which there is as lamentable a deficiency of well-ascertained facts, as there is redundance of vague conjecture and visionary hypothesis.

It may be asked, but what has the state of the air-passages to do with fever? Probably more than has yet been ascertained, and particularly in that called congestive. Can it be unworthy of the physiologist's attention to investigate, by the aid of pathological anatomy, the condition of organs which perform a function essential to life — a function equal in importance even to that of the circulation itself? In warm-blooded animals, circulation speedily becomes useless, without respiration; for the blood, no longer supplied with the vital properties which depend upon respiration, ceases to support the energy of the sensorium, without which, circulation itself soon ceases. Hence we see that the brain and nervous system, the organs of circulation, and those of respiration, are so intimately and inseparably united, that their functions cannot be separately performed. Suspend, for any considerable length of time, any one of these functions, and you destroy the whole. And if any one or more be only partially suspended, a series of phenomena takes place incompatible with health, and assuming various shades of disease. If, on the other hand, any one of these functions be unduly increased, the others are soon implicated in the disturbance. Hence, although disease shall have commenced in one of these classes of organs, yet in its progress the others speedily participate; and thus it becomes necessary to investigate the entire series of phenomena which constitute health, that we may be enabled to ascertain, and (as

far as the extent of science will admit) to remedy any deviation from it.

But to return more particularly to the effects of respiration. Every one is aware that drowning, hanging, and suffocation, destroy life; and the same result follows, in whatever manner respiration may be rendered impracticable, or when the air respired does not contain a sufficient proportion of vital air (oxygen) to support that change in the properties of the blood, by whatever terms it may be designated, which is known to be produced by respiration.

Numerous illustrations might be adduced, drawn from experiments on living animals,—the records of history,—or the contemplation of disease. By the experiments on animals which are familiar to almost every tyro, it is known that the exhausted receiver of the air-pump, or the supplying of an animal with air deprived of oxygen (whether that air be produced artificially, or that its oxygen be exhausted by repeated respiration), affords a mere modification of the same kind of death.

The dreadful effects of the black hole of Calcutta; the confined hold of a slave-ship; the pestilential atmosphere of a crowded and ill-ventilated hospital, sweeping off its victims by hospital gangrene; are extreme cases: but examples of the unhealthiness of certain places, which do not admit of sufficient change of air, where the means of carrying off noxious animal or vegetable effluvia are insufficient, may be found in numerous medical works.

The illustrations supplied by disease may be traced in cases of croup, laryngitis, &c. in which, by the swelling or otherwise closing of a portion of the air-passages, the air is prevented from entering the lungs. Or, the impracticability of efficient respiration may be equally induced, by the filling up or coating of the bronchial cells and tubes resulting from diseased secretion, which is incapable of transmitting the vital properties of the air to the blood circulating in the lungs; cases of which are more abundant than may be supposed by those who have not been accustomed to examine the condition of the

air-passages in pathological dissections. This examination of the air-passages ought, in my opinion, to constitute an essential part of every anatomical investigation of morbid appearances *.

Supposing the third season to have been chiefly occupied in the actual study of diseases, and in carefully recording the facts observed, the arrangement of the materials thus collected still remains to be performed. This will be a pleasing and useful exercise, and will show what diseases have been observed, and what are wanting.

A series of tables may be constructed so as to exhibit the general result of all the cases of disease which have fallen under the student's observation; and the essential particulars of which should be found in his clinical case book. The advantages thus obtained, by enabling the student to generalize the facts, to compare the result of the various modes of treatment, and thereby to establish that mode which has proved the most entitled to confidence, are too obvious to be dwelt upon. The medical topography, &c. of the district in which the dis-

* One out of numerous instances may be mentioned. An elderly man laboured under fracture of two of his ribs. A bandage had been applied not only to the chest, but also surrounding the abdomen; and this bandage had been kept wet for some days, by lotions. Bronchial inflammation, as might be expected under such circumstances, supervened, and the patient died. Inspection after death was permitted, to which a surgeon who had seen the patient once during his illness, was invited. He arrived just as the examination was said to be finished, but without any satisfactory result; there being none of the common marks of inflammation of the chest (pleura), and the abdominal viscera being tolerably healthy. He inquired what was the state of the air-passages? They had not been looked at. He requested leave to examine them, and found the bronchia and their ramifications filled with fluid of a puriform appearance. The lungs were loaded with similar fluid, which copiously exuded, mixed with a portion of air, on pressing any part of which a section had been made. The bronchial lining was much inflamed, but there was no ulceration. Thus the unexplained cause of death became apparent!

cases occurred, and the atmospheric phenomena, should be appended; for, as has been before noticed, many diseases are dependent on local peculiarities; particular employments, and atmospheric vicissitudes.

Separate tables may be arranged to bring together results respecting any disease or class of diseases which may have been fully investigated*.

The previous anatomical and scientific attainments should be preserved at least, if not improved.

The student will now be able to examine the relative merits of hospitals and hospital practice, much more efficiently than at an earlier period of his studies; and having previously visited those most worthy of observation in the United Kingdom, he will do well to examine foreign hospitals. Those of France may be visited at so moderate an expense either of time or money, now that peace admits of ready intercourse between the two nations, that the opportunity should not be omitted. To these may be added any others, which the inclination or judgment of the student may induce him to investigate.

The study of books may greatly assist in directing the attention, but can never supply the place of actual observation. It has been well observed, that "experience can never be acquired from reading; but it may be prompted and rendered of much easier acquirement by its aid." It is not enough that the actual state of the science be already ascertained; but the progressive improvements in medicine and the accessory sciences, which every year brings forth, should be added to the previous stock of information.

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* Examples of concentrating practical observations may be found in various scattered publications. It is to be regretted that there are so few published records of the hospital practice of this kingdom. The Dublin Hospital Reports, and the French "*Annuaire Médico-chirurgicale des Hôpitaux et Hospices civils de Paris*, 1819," contain much that is worthy of imitation.

I would caution the student against contenting himself with superficial views and mere dictionary knowledge. Without wandering from one subject to another, whilst he has any disease under observation, let him study it profoundly; let his reading be directed to that particular point; let him examine and compare the descriptions of others with the symptoms which he may observe at the bedside, and let him determine how far the reasonings correspond with the facts adduced.

It may not be irrelevant to recapitulate the studies proposed subsequently to the termination of a medical and surgical apprenticeship.

First season,—Anatomy, &c.

Second season,—Anatomy continued, with the usual course of medical and surgical studies.

Third season,—The strict investigation of disease, by clinical observation and pathological anatomy.

The occupations proposed for the vacations, I consider highly useful, though not strictly essential. Should the student, however, find it necessary to limit the period to *two* years instead of *three*, the same course of resident instruction may be filled up, by continuing his studies during the two summers, the time thus gained being equal to the third season. The more extensive the sphere of observation, when combined with adequate, well-directed industry, the more competent may the individual be rendered to contribute towards the improvement of the healing art.

Thus prepared for the actual duties of his profession, he may present himself for examination at Apothecaries' Hall, and at the College of Surgeons, without fear of the result. In proportion as these tests become more efficient, although the former is not entirely verbal, the profession and the public may be equally benefited; for it is to be regretted, that preparing for examinations too often usurps the place of more useful study; and it must not be concealed, that sometimes licenses and diplomas do not protect their possessors from legal retri-

bution, when the practical knowledge of their profession has been found wanting.

But let not the passing of examinations paralyse the future exertions of the student in improving his knowledge of the healing art. However zealously he may labour, however ample his opportunities, yet will there be sufficient scope for improvement. The longest life of the most highly gifted individual would not suffice to supply all the desiderata in medical science, nor to make any very near approach to perfection.

Before he attempts to establish himself in practice, it may be well to pass some time as assistant in any public or private situation, which may, to the less arduous duties of medicine and surgery, add sufficient opportunity for observation and improvement.

To appreciate the artificial division of the medical profession would require to retrace its history to the period at which this division took place, and to the causes which produced it; but this has been so ably executed in an essay on Medical Legislation, published in the fourteenth volume of the Edinburgh Medical and Surgical Journal * (January 1818), that I shall quote a few passages, and refer the reader to the work itself.

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* "An Attempt to develope the fundamental Principles which should guide the Legislature in regulating the Profession of Physic." The judicious editor of that journal has added the following note: "The importance of the subject of this communication, and the justness of the general principles explained in it, are such, that we are induced to depart from our usual reserve, and to recommend it to the most serious attention of the profession. That medical reform is much wanted, is admitted on all hands; but the most opposite opinions are entertained with regard to its precise object, and the means by which reformation is to be effected. Even the latest legislative enactments have proceeded upon narrow principles, and their operation, instead of being beneficial, has proved hurtful, especially by increasing the obstacles to a general methodical reform, in which the paltry jarring interests of individuals and corporations, of physicians, surgeons, and apothecaries, should be disregarded, and the

"The wants of society require a competent supply of general practitioners.

"The interests of the science, and the accommodation of the higher ranks of society, require that there should be also a suitable supply of practitioners in the separate departments of physic and surgery.

"In each instance the supply will, with considerable certainty, accommodate itself to the demand, if not prevented by injudicious influences and restrictions.

"The wants of society require physicians, surgeons, and general practitioners; the first practising physic exclusively, or physic and midwifery conjoined; the second, surgery and physic, and sometimes midwifery; the third superadding pharmacy to the several other departments.

"In this view the profession presents us with a series, in which each department is seen embracing a wider field of practice than the one immediately above it. It may be typified by a cone, of which the department of physic is the apex, that of general practice the base.

"These several practitioners may be regarded as in some measure forming the gradations of rank in the profession, by which it accommodates itself to the corresponding gradations in general society; the physicians being suited more particularly to the higher orders; the surgeons holding an intermediate place between the physicians and general practitioners; and these latter embracing the whole community, from its highest to its lowest degrees, their utility rendering them neces-

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only rational object of a medical constitution, the providing for the wants and security of the public, should be kept steadily in view. The community requires the assistance of the various, but almost inseparable branches into which the healing art has been divided, and it requires that these should be provided at the cheapest rate, in the most convenient manner, and of the best quality that circumstances will permit. The community also requires to be defended from fraud, imposture, and ignorance.

Salus publica, suprema lex."

sary to the former, while their humility and habits of active industry fit them for extending their services to the lowest extreme.

" These several views may perhaps be deemed rather fanciful than real, or useful. If I mistake not, however, some such illustrations are absolutely required, to convey to the public at large, notions even tolerably distinct and accurate, respecting the real nature of the several departments, and the relation which they bear to each other, and to the community.

" To each of these classes a more particular consideration must now be given; and, for reasons sufficiently obvious, I shall reverse the preceding order, beginning with the general practitioner.

" From all the foregoing statements and considerations, it must be manifest, that this practitioner more perfectly represents the medical character than any other; that, in fact, he alone can be identified with the profession, of which they who compose the other departments are but partial members, formed into separate associations by casual influences, having no claim of abstract right to that superior, and almost exclusive countenance and protection which they have hitherto engaged, and dependent on contingencies only for maintaining a separate existence.

" With respect to the qualifications of the general practitioners, it is requisite that they be fully competent to the practice of physic, surgery, midwifery, and pharmacy,—in fact, to every thing that medical science and practice can be supposed to extend to.

" These several departments, regarded separately, would seem to require peculiar and distinct modes of education. When it is necessary, however, to combine them in the individual, the courses of instruction must, while they provide for the first service of the public, be so modified as to suit his personal convenience.

" The candidate for general practice, then, should be acquainted with the elements of medical science, and with the

nature and treatment of diseases. This knowledge is to be arrived at by means of lectures, study, and clinical observation. He must also be familiar with the practice of surgery, which, being an art requiring considerable dexterity, is generally, and perhaps most effectually, attained by apprenticeship; although on this point opinions are by no means agreed. Midwifery, in its practical part, is learned at the public institutions for the relief of lying-in women, or in the private practice of teachers and professors; and pharmacy, like surgery, has for the most part been taught by apprenticeship also.

"In this course, two apprenticeships are included, between which, as incompatible with each other, it is necessary to choose. Now, as the surgeon can readily, and actually does, combine pharmacy with his higher department, so as to teach both arts to his apprentice, while the apothecary can be supposed to teach only the inferior and subordinate one, there can be no hesitation in deciding, that the surgeon is the member of the profession, best qualified for duly instructing and preparing the future candidate for general practice.

"And on reference to facts, it will appear, that the natural tendency of human affairs to glide into those courses which are most congenial and beneficial, has actually so prevailed, as that a considerable part of the supply of general practitioners throughout England emanates from this source."

A subsequent volume presents a masterly continuation from the same pen*.

It now remains to examine the condition of the general practitioner, to whose care is intrusted the health of a great majority of the community throughout the kingdom. In large cities and towns the physician, and the surgeon who does not practise pharmacy, may be furnished with sufficient employment in their separate departments; but it is well known,

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* "Exposition of the present State of the Profession of Physic in England, and of the Laws enacted for its Government." Edinburgh Med. and Surg. Journal, vol. xvi. p. 479. (Oct. 1820.)

that in the country, and in provincial towns, with very few exceptions, the duties of the medical profession devolve almost exclusively upon the surgeon-apothecary, or, in other words, the general practitioner. The mere apothecary, who does not unite a surgical education to his qualifications in pharmacy, is scarcely known out of the metropolis; for the sphere of his usefulness must be necessarily too limited to supply fully the wants of the middle and humbler classes of society, who cannot afford to employ *two* individuals to do that which may be efficiently performed by *one* of more extended education.

It may be supposed that the "Act for better regulating the Practice of Apothecaries throughout England and Wales," which passed the legislature in 1815, should not only effectually provide for the public safety, but protect the regularly educated members of the profession. Unfortunately this supposition has not been realized; for, whilst the regular practitioner is made liable to vexatious inquisitions and excessive penalties, the druggist may, without annoyance, and with perfect impunity, contravene every clause in the Act, to which penalties are attached. Whilst druggists are employed to compound and dispense the prescriptions of physicians and surgeons, the public safety requires, that they should not be exempt from penalties supposed to be necessary to guard against any probable abuse that may be punishable in the conduct of others.

The Act of Parliament, after reciting the former charter, expresses, "And be it further enacted, That in lieu and stead thereof, the said master, wardens, and society of apothecaries for the time being, and their successors, or any of the assistants, or any other person or persons properly qualified, as hereinafter is mentioned, to be by the master and wardens nominated and assigned, not being fewer in number than two persons at the least, shall and may from time to time, and at all seasonable and convenient times, in the daytime, as often as to the said master and wardens it shall seem expedient, go and enter into any shop or shops, of

any person or persons whatever, using or exercising the art or mystery of an apothecary in any part of England or Wales; and shall and may search, survey, prove, and determine, if the medicines, simple or compound, wares, drugs, or any thing or things whatsoever therein contained, and belonging to the art or mystery of apothecaries aforesaid, be wholesome, meet, and fit for the cure, health, and ease of His Majesty's subjects; and all and every such medicines, wares, drugs, and all other things belonging to the aforesaid art, which they shall find false, unlawful, deceitful, stale, unwholesome, corrupt, pernicious or hurtful, shall and may burn, or otherwise destroy; and also shall and may report to the master, wardens, and assistants of the said society, the name or names of such person or persons as shall be found to have the same in their possession; and the said master, wardens, and assistants, shall and may impose and levy the following fines and penalties upon each and every person whose name shall be so reported to them, as hereinafter mentioned: for the first offence the sum of five pounds; for the second offence the sum of ten pounds; and for the third, and every other offence, the sum of twenty pounds."

Now it may be observed, that the character of the individuals authorized to exercise these powers is the only guarantee for the faithful performance of the trust reposed in them: for, were it possible to suppose that gentlemen, exercising an honourable profession, could descend to act maliciously and under the cloak of authority, the words of this clause are more than sufficient to cover such conduct *.

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* It must be obvious to any one acquainted with pharmacy, that some of the vegetable mixtures, infusions, &c. spoil in summer weather in less than twenty-four hours. A person compounding medicine would be no more likely to use them in that state than a cook to use sour milk in making a pudding. Neither the one nor the other could escape observation. *Pernicious* may be applied to the whole class of poisons, many of which, under judicious management, are

The society of apothecaries has, however, shown its sense of this clause by abstaining from any other use of it than an occasional visit to the shops of apothecaries.

" And whereas it is the duty of every person using or exercising the art and mystery of an apothecary, to prepare with exactness, and to dispense such medicines as may be directed for the sick by any physician lawfully licensed to practise physic by the president and commonalty of the faculty of physic in London, or by either of the two universities of Oxford or Cambridge; therefore, for the further protection, security, and benefit of His Majesty's subjects, and for the better regulation of the practice of physic throughout England and Wales, be it enacted, that if any person using or exercising the art and mystery of an apothecary, shall at any time knowingly, wilfully, and contumaciously refuse to make, mix, compound, prepare, give, apply, or administer, or any way to sell, set on sale, put forth, or put to sale to any person or persons whatever, any medicines, compound medicines, or medicinable compositions, or shall deliberately or negligently, falsely, unfaithfully, fraudulently, or unduly make, mix, compound, prepare, give, apply or administer, or any way sell, set on sale, put forth, or put to sale to any person or persons whatever, any medicines, compound medicines, or medicinal compositions, as directed by any prescription, order, or receipt, signed with the initials in his own hand-writing, of any physician so lawfully licensed to practise physic, such person or persons so offending, shall, upon complaint made within twenty-one days by such physician, and upon conviction of such offence be-

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not only capable of affording relief in disease, but are in daily use. Exclude all medicines which, in excess, may be called poisons, and the materia medica will present little beyond simples and *placebos*. The destroying of an article must also destroy the proof of its being good or bad. Were these penalties restricted to fraudulent or corrupt sophistications, whether in the possession of apothecaries or of druggists, no honest man need object to them.

fore any of His Majesty's justices of the peace, unless such offender can show some satisfactory reason, excuse, or justification in this behalf, forfeit, for the first offence the sum of five pounds; for the second offence the sum of ten pounds; and for the third offence he shall forfeit his certificate, and be rendered incapable in future of using or exercising the art and mystery of an apothecary, and be liable to the penalty inflicted by this act upon all who practise as such without a certificate, in the same manner as if such party so convicted had never been furnished with a certificate enabling him to practise as an apothecary; and such offender so deprived of his certificate shall be rendered and deemed incapable in future of receiving and holding any fresh certificate, unless the said party so applying for a renewal of his certificate, shall faithfully promise and undertake, and give good and sufficient security, that he will not in future be guilty of the like offence."

Really the vassalage of the barbers and the barber-surgeons of antiquity, to their lords and masters the physicians, could not be more submissive than that of the humble apothecary of the present day who may happen to be *honoured* with the commands of the M. D.'s of London, Oxford, and Cambridge.

In point of independence the hackney coachman is a gentleman compared to the apothecary. The former, it is true, may be fined if, when called from his stand, he refuse a fare; but he may still earn a livelihood; he is not incapacitated from driving: but the apothecary, if he dare to disobey the potent *initials* of an M. D. three times*, even should they be affixed

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* It is related of a Dr. Schomberg, that "he obtained an English plum-pudding at Paris by throwing the recipe of an old cookery-book into the form of a prescription, and sending it to the apothecary to be made up. To prevent all possibility of error, he directed that it should be boiled in a cloth, and sent in the same cloth, to be applied at an hour specified. At this hour it arrived, borne by the apothecary's assistant, and preceded by the apothecary himself, drest, according to the professional formality of the time, with a

to a recipe for a plum-pudding; may set up beggar, and sing "Rule Britannia," or any thing else; for he must no longer follow his *art* and *mystery* of an apothecary! unless by promise and security that he will not in future be guilty of the like offence.

No doubt the apothecaries and surgeon-apothecaries of England and Wales are truly grateful to their committee, which was deputed to protect their rights from encroachment, at the time this Act was prepared and in progress through the legislature!

But seriously, the effect of this clause is, to say the least, unmeasured; for it makes no distinction between a *refusal to make*, GIVE, apply, or administer any medicine; between a *negligent mistake* (which may relate merely to a colouring ingredient, possessing no medicinal properties); and the *fraudulent preparation* of any prescription which the apothecary has undertaken to compound. To this last only, at the least, should so severe a penalty, as being rendered incapable in future of using his art, be restricted: no extenuation of fraudulent sophistication could be desired*.

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sword. Seeing, when he entered the apartment, instead of signs of sickness, a table well filled and surrounded by very merry faces, he perceived that he was made a party in a joke that turned on himself, and indignantly laid his hand on his sword; but an invitation to taste his own cookery appeased him, and all was well."—*Vide Miss Hawkins's Anecdotes.*

* It need scarcely be pointed out how discordant such excessive penalties are to that equitable principle of Magna Charta (chap. 14), which, in amercements even to the crown, reserved to every man the means of future subsistence.

When such excessive penalties are enacted against the apothecary who may happen to make an inadvertent mistake, some provision should be made that the *writing* of physicians' prescriptions should be so distinct that no misconstruction should be likely to occur. I state it with reluctance, but it is well known, that instead of any thing like perspicuity, many prescriptions rather seem to be a collection of hieroglyphics, to exercise the ingenuity of the decy-

Whether the regularly educated apothecaries and surgeon-apothecaries have really merited so severe a censure as is here implied, or whether they are incapable of deserving so foul a stain, it behoves those members who are anxious to uphold the usefulness and respectability of their profession seriously to inquire, and to act accordingly. But let it be observed, that whilst the regular members are thus stigmatized and degraded, the evils denounced are left to prey upon the vitals of the community without restraint. It is not surprising, such is the weakness and short-sightedness of human nature, that they who have never studied the effects of remedies, nor witnessed the sufferings under disease, should set a mere mercenary value on drugs, and sophisticate them, thereby, in the sale of large quantities, greatly to enhance their own profits. But that men

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pherer, than words formed of the letters used in common writing. The ambiguity of abbreviations should also be avoided: in fact, a prescription should be so perspicuous as to leave no pretence for guessing whether a scrawl be intended for one word or for another.

To show that the public is not ignorant of, nor indifferent to these facts, the following quotation is made from a respectable literary journal, unconnected with the interests of the medical profession.

"A law was, a few years since, enacted to oblige every individual who practises as an apothecary to undergo an examination as to his competency to perform the duties of his station. It is perfectly just that such a law should exist. But since the principal part of the prescriptions which are written by physicians are placed in the hands of young men in the shops of druggists, it must be a matter of astonishment to every thinking member of the community, that these young men are not likewise compelled to undergo an examination.

"'They manage these things better in France;' there, no man is allowed to prepare medicines without previously obtaining a certificate of his abilities to perform what he professes. All who send prescriptions to men ignorant of the Latin language, incur great risk; and this risk is much augmented by the 'lamentable practice too frequent with many prescribers, of employing *such characters and abbreviations as leave much to the conjecture* of those who prepare the medicines so ordered.'"

daily witnessing and sympathizing in the sufferings of those who look up to them for relief and safety, should be capable of betraying their duty, to add a fraction of a penny or some such paltry sum to their fair profits, is a proposition so monstrous as to carry its own refutation with it *.

Let me ask, let the profession inquire, has any one *con-*

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* In 1815, Mr. now Dr. Kerrison published Observations and Reflections on this Bill whilst in its progress through the House of Commons. The very proper feeling which is expressed by him must be participated by every liberal-minded member of the profession. All sweeping prejudices against entire classes of men must be unjust; for there are good and bad in all numerous bodies. If I have yielded to the necessity of speaking strongly on the practice of druggists, I beg it may be distinctly understood, that it is against the dangers incident to those practices that I conceive it my duty to object. Far from entertaining personal hostility towards the individuals, I know that there are some chemists and druggists of accurate and extensive information, and I believe of unquestionable integrity. Were druggists to be subjected to competent proof of their fitness to perform what they now undertake, whether qualified or the contrary, the public welfare would not be compromised, and the objection to their being trusted in pharmacy would cease.

Dr. Kerrison expresses, "It has been intimated, that the druggists have convened meetings of the trade to oppose the Apothecaries' Bill. The author of these observations would be ashamed of entertaining prejudices against any class of men, or of permitting unworthy motives to bias his mind, in advocating the cause of truth and justice. In prosecuting the subject in his 'Inquiry into the present State of the medical Profession,' he endeavoured to show that the solicitude, which must necessarily exist in the mind of apothecaries, for the expected operation of remedies, and their beneficial influence, whether prescribed by themselves, or in co-attendance with a physician, could not be equally impressive on the promiscuous compounders of prescriptions in the shops of druggists, who, being uniformly actuated by the general principle of trade, must be chiefly interested in the ratio of profit upon the compounds. Such persons have no knowledge of the patient, no anxiety for the relief of acute or protracted suffering."

viction under this clause of the Act taken place? Has even a solitary *prosecution* been instituted?

Take the following as a corollary to the previous clauses: "Provided always, and be it further enacted, that nothing in this Act contained shall extend, or be construed to extend, to prejudice, or in any way to affect the trade or business of a chemist and druggist, in the buying, preparing, compounding, dispensing, and vending drugs, medicines, and medicinable compounds, wholesale and retail; but all persons using or exercising the said trade or business, or who shall or may hereafter use or exercise the same, shall and may use, exercise, and carry on the same trade or business in such manner, and as fully and amply to all intents and purposes, as the same trade or business was used, exercised, or carried on by chemists and druggists before the passing of this Act."

Now it may be inquired, What does the apothecary, in the exercise of his profession, perform, which the retail druggist does not attempt? Is the latter not a dabbler in the treatment of disease, whenever a patient will employ him? Does he not attend patients, as well as compound and dispense prescriptions? Even a druggist has given public evidence as to the sanity of mind of a patient whom he has attended.

The Act is so indefinite, that although "the functions of an apothecary," "to act as an apothecary," &c. are alluded to, I have not in the whole of the Act been able to find any definition which fixes the extent and import of these terms.

There is a technical error relating to penalties; which leaves the recovery of those of five pounds unprovided for—although it provides for those *under* five pounds of which there are none*.

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* The late Earl Stanhope (who steadily opposed this Bill in the House of Lords) compared this incongruity to an Act which had been hurried through the Legislature, in which a penalty had been altered from a pecuniary fine to transportation, whilst the appropri-

Having shown some few of the many defects of this Act, it is but fair to notice the advantages which may in time result from it.

"And to prevent any person or persons from practising as an apothecary, without being properly qualified to practise as such, be it further enacted, that from and after the first day of August, one thousand eight hundred and fifteen, it shall not be lawful for any person or persons (except persons already in practice as such) to practise as an apothecary in any part of England or Wales, unless he or they shall have been examined by the said Court of Examiners, or the major part of them, and have received a certificate of his or their being duly qualified to practise as such, from the said Court of Examiners, or the major part of them, as aforesaid; who are hereby authorized and required to examine all person and persons applying to them, for the purpose of ascertaining the skill and abilities of such person or persons in the science and practice of medicine, and his or their fitness and qualification to practise as an apothecary; and the said Court of Examiners, or the major part of them, are hereby empowered either to reject such person or persons, or to grant a certificate of such examination, and of his or their qualification to practise as an apothecary as aforesaid: provided always, that no person shall be admitted to such examination until he shall have attained the full age of twenty-one years.

"Provided always, and be it enacted, that no person shall be admitted to any such examination for a certificate to practise as an apothecary, unless he shall have served an apprenticeship of not less than five years to an apothecary, and unless he shall produce testimonials to the satisfaction of the said Court of Examiners, of a sufficient medical education, and of a good moral conduct."

It cannot be mentioned without regret, that the effect of

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ation of the penalty had escaped alteration, so that it stood—one half thereof to the informer, and one half thereof to the King!

these clauses has hitherto been too much resembling that of the cobweb, which entangles the small flies, and allows the greater to break through it. The very few prosecutions that have been commenced, during a period of more than seven years, have been against individuals whose extreme ignorance must have been a tolerable guarantee of their insignificance; and it may be questioned whether the entire practice of all the individuals thus prosecuted was equivalent to that of a single dispensing druggist in full trade in the metropolis.

In a tract, the title of which is quoted below*, published anonymously, but the author of which is well known to possess high and deserved rank in the College of Surgeons, the following may be read with some interest, as the facts stated have not been controverted.

"In an appeal of this sort, it would be improper to rake up any of the shameful disputes and criminations, which have so often disgraced medical literature; but it would, at the same time, be unjust to refrain from telling the public, that several regular physicians and regular surgeons have been lately detected in sharing the profits of retail drug shops.

"If the members of the Royal Colleges shall fail to purify themselves from such unworthy practices, let them be cautious at least how they attempt to impede the reasonable public claims of a class of men, proving themselves to be duly qualified, casting off the odium of being unprincipled dealers in physic, and asking only a just compensation for their services."

Although any one, however unqualified, may do as he pleases, calling himself a chemist or druggist, yet this Act certainly provides for a sufficient medical education in those who regularly enter the profession, testimonials of which are re-

* "A Letter on the State and Condition of Apothecaries, with Proposals for making their Offices more respectable, and more beneficial to the Public, addressed to Pharmacopola Verus. By a true Surgeon. London: printed for J. Callow, Medical Bookseller, Crown Court, Soho. 1812."

quired to be produced prior to examination*. The examination is fairly conducted as far as it goes†, regarding Latin,

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* "Apothecaries' Hall.—Regulations for the Examination of Apothecaries.

"The Court of Examiners chosen and appointed by the Master, Wardens, and Assistants of the Society of Apothecaries, of the city of London, in pursuance of a certain Act of Parliament, 'for better regulating the *Practice* of Apothecaries throughout England and Wales,' passed in the 55th year of the reign of His Majesty King George the Third, have determined:

"That every person who shall be admitted to an examination for a certificate to practise as an apothecary, shall be required to produce

"Testimonials of having served an apprenticeship of *not less* than *five years* to an apothecary; of having attained the full age of *twenty-one years*, and being of a good moral conduct.

"N. B. Candidates for examination are requested to take notice, that in future the production of their articles of apprenticeship, where such articles are in existence, will be considered indispensably requisite to examination; but, in any case, where such articles shall have been lost, or from any other cause may not be capable of being produced, it is expected that the candidate shall bring forward very strong testimony to prove that he has served such an apprenticeship to an apothecary, as the Act of Parliament directs.

"He is expected to possess a competent knowledge of the Latin language, and to produce certificates of having attended not less than

"Two courses of lectures on anatomy and physiology:

"Two courses of lectures on the theory and practice of medicine:

"N. B. After the 1st of January 1823, no testimonial of attendance on lectures on the principles and practice of medicine, delivered in London or within seven miles thereof, will render a candidate eligible for examination, unless such lectures were given, and the testimonial is signed by a Fellow, Candidate, or Licentiate of the Royal College of Physicians.

"One course of lectures on chemistry; and

"One course of lectures on materia medica.

"A certificate of attendance for *six months at least* on the *medical practice* of some public hospital, or infirmary, or for *nine months* at a dispensary.

† See note in page 117. "The

materia medica, pharmacy, physiology, and some knowledge of diseases: it is, however, defective in not including anatomy,

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"The court have also determined, that the examination for a certificate to practise as an apothecary, shall be as follows:

"1. In translating parts of the Pharmacopœia Londinensis, and physicians' prescriptions.

"2. In pharmaceutical chemistry.

"3. In the materia medica and in medical botany.

"4. In physiology.

"5. In the practice of medicine.

"Notice.

"Every person intending to qualify himself under the regulations of this Act, to practise as an apothecary, must give notice in writing, addressed to the clerk of the society, on or before the *Monday* previously to the day of examination; and must also at the same time deposit all the required testimonials at the office of the beadle, at Apothecaries' Hall.

"The Court will meet in the Hall *every Thursday*, where candidates are requested to attend at half past one o'clock.

"By order of the Court,

"London, Oct. 1, 1822. JOHN WATSON, Secretary."

† It must not, however, be concealed, that the regulation which precludes the candidate from examination, "unless such lectures were given and the testimonial is signed by a Fellow, Candidate, or Licentiate of the Royal College of Physicians," is, to say the least, as uncalled for as it is arbitrary. The question recurs, Whether the examination be in reality a sufficient test of medical knowledge and skill, or whether it is not so. If the examination really is a sufficient test, it must ascertain the fitness of a candidate for the duties of his profession, or detect his insufficiency: hence it can be of as little consequence whether his knowledge of medicine be drawn from the lectures of a Fellow or Licentiate; or from the more efficient source, the actual observation of disease, as whether his anatomical knowledge be acquired in summer or in winter. Whoever has considered the plan of study recommended in the preceding pages, must be aware that I *advise* the student to avail himself of the courses of instruction in every branch of the profession; but I object to the principle of compulsion which in this case substitutes the shadow for the substance. I have known intelligent students who had studied disease at the bedside as well as in

without which any knowledge of disease can only be superficial and empirical. The groundwork of all medical informa-

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books, regret their waste of time and money in attending medical lectures which contained no information beyond that which they could find in systems and books published half a century ago; whilst the errors of those systems were as carefully preserved as the little useful matter which they contained.

It may be further observed, that the restriction above mentioned is an implied insult to the whole body of the medical profession, except the Fellows, Licentiates, &c. Either the surgeon-apothecaries and general practitioners are sufficiently informed in the knowledge of diseases to fulfil the duties which they profess in the treatment of their patients, or they are not. To assume that there is not one in the whole body that is sufficiently informed to discharge his duties, would be to pronounce that there is not a single honest man in the profession, "in London or within seven miles thereof," except the "Fellows, Licentiates," &c.; a proposition which could never be contemplated by the honourable examiners, as it would necessarily include themselves; for they are not either Fellows or Licentiates, but apothecaries; although their noble masters the physicians may, by the gracious provisions of this Act, be called in to assist them in their examinations. Now, should the examiners believe it possible that there may be honest men in the profession, who are neither Fellows nor Licentiates of the London College of Physicians, can they suppose a solecism that should admit the former to possess the necessary information, and to be incapable of communicating it to those whom it may be a part of their duty to instruct! If so, let them go to a Lancasterian school, and witness the fact that a child can teach that which he has sufficiently learned.

Can it be supposed, that such men as Dr. James Johnson and Dr. Armstrong were incapable of teaching the rudiments of their profession until they were encircled by the magic influence appertaining to Licentiates of the London College of Physicians? The former, it is well known, established a solid medical reputation by his works published many years before he ceased to be a general practitioner; and the works of the latter received the approbation of the profession before he established himself in the metropolis, or presented himself to the College.

I have before (p. 58) glanced at the subject of lectures, and have shown that in those not essentially demonstrative, the instruc-

tion (anatomy) should not be left to chance; for it is really as essential in the discrimination of internal diseases as it is indispensable in the practice of surgery.

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tion which they may contain could be as fully communicated and much more extensively diffused by the press, should it suit the views of the teacher, than by the loudest declamation; whilst the careful revision of a work on any branch of science must possess some advantage beyond the usual inaccuracy of extemporaneous delivery, although it be less imposing in appearance. Nay, indeed it sometimes happens that lectures, aided by a graceful delivery, and perhaps authority in high places, have been applauded, whilst had the subject matter been communicated by an obscure author (unless its entire insignificance should have shielded it from examination), its deficiency would have been made as apparent as that of a gilt counterfeit coin compared with a sterling guinea. An author of some celebrity has stated of lectures—"These, whether public or private, are surely the very worst modes of acquiring any sort of accurate knowledge; and are just as much inferior to a good book on the same subject, as that book hastily read aloud, and then immediately withdrawn, would be inferior to the same book left in your possession and open at any hour to be consulted, retraced, collated, and in the fullest sense studied."

It is to be regretted that instances of hardship have occurred, no doubt arising from the dictates of supposed duty: it has been known that a diligent student of good moral conduct, who had served a regular apprenticeship to a surgeon-apothecary, and had passed as many as nine years in the profession, with extensive opportunities of acquiring medical knowledge, has entreated in vain to be permitted to undergo examination; urging his request, by declaring he wished for no favour or indulgence beyond that of having his qualifications for the duties of his profession fairly put to the test. His entreaty was disregarded, although he possessed the certificate of the gentleman whose assistant he had been, that the latter would admit him into partnership as soon as the passing of his examination should take place; and bearing testimony to his excellent moral and professional conduct.

The Act declares that the examiners are authorized and required to examine all those who present themselves for that purpose; in another clause the examination depends on testimonials of a *sufficient* medical education and good moral conduct; but unfortunately,

It is gratifying to observe that the rising practitioners possess many advantages in their professional education. The increasing intelligence of the public calls for adequate attainments on the part of their medical attendants; and to this powerful source do I look, more than to any exclusive privileges of corporate bodies, for calling forth the energies and extending the usefulness of the profession *.

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in what this "sufficient medical education" consists, is no more defined by the Act than are "the functions of an apothecary." The medical education of the *physician* (in the colleges of Edinburgh, Glasgow, and, I believe, Dublin) comprises a period of *three* years, or rather of three seasons, whilst the period of *three times three* spent in study and practice shall not be deemed sufficient to admit even to an *examination* for an *apothecary!* It has often been supposed that the physician wishes for the annihilation of the apothecary; but surely it must be the intention of examiners at Apothecaries' Hall that the physician shall be driven from the field of competition by the superior attainments of the apothecary, if the latter survive the starvation to which he may be subjected by their determination.

It may not be irrelevant to inquire, how does such conduct accord with the established fact, in direct violation of the Act on which the examiners rest their authority, that they who have not served any apprenticeship to an apothecary (as expressly provided for in the Act), have been admitted to examinations and have received licenses to practise as apothecaries? It may perhaps be answered, that these candidates had served apprenticeships to druggists:—druggists neither are, nor are recognised by law as apothecaries; should it, however, be admitted, for the sake of argument, that there be no difference between druggists and apothecaries, the absurdity of the proposition becomes apparent; otherwise how does it happen that the druggist is exempt from those inquisitions and penalties relating to apothecaries, which can only be tolerated on the supposition that they have been designed, however inadequate to that end, to protect the public?

* "A Statement of Circumstances connected with the Apothecaries' Act, and its Administration. By George Man Burrows, M. D. F. L. S. London: published by Callow, 1817," is of deep importance to every individual subjected to the provisions which that Act contains. The facts therein detailed demonstrate; notwith-

It may not be unuseful to inquire into the manner of remuneration adopted towards the general practitioner. The physician and the surgeon not practising pharmacy, are very properly rewarded for their skill; the general practitioner unites the necessary education and performs the services of both; but the recompense for his services, unless increased by spontaneous liberality, has hitherto been in the shape of profit upon medicines.

This mode of payment has led to obloquy and distrust; and is in every respect objectionable. In a profession so numerous as that of all the departments of medicine, drawn and not selected from the mass of the people, there must, as in all other professions, be some unworthy, whilst there are many worthy members. It is not my intention to discuss the unworthy means which have occasionally been resorted to by the less deserving, nor to enter into the jarring and narrow interests of the separate branches of the profession. I believe that sufficient skill, learning, and unimpeachable integrity exist in its ranks to sustain that high reputation which appertains to so useful and exalted an office as that of preventing and alleviating the sufferings of human kind.

The mode of remunerating the general practitioner is not only degrading but unjust; it degrades that education on which his usefulness depends, sets it at naught, and values only the drugs, and not the skill that directed their use. It is degrading inasmuch as it holds out a temptation to furnish a larger quantity of medicine than may be absolutely required, and thereby exciting distrust; and it is unjust, inasmuch as the reward is not in direct ratio to the ability exercised, but in-

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standing the refusal to make or give, or the mixing negligently or unduly, may bring professional annihilation to the individual apothecary; that they who are appointed by law to superintend and carry the purposes of this Act into full execution, may set its provisions at naught, and "go on and prosper;" if increase of gain be the criterion of prosperity.

versely; the skilful practitioner who readily effects the removal of disease receiving the least; and the inefficient practitioner whose want of skill allows the disease to run a protracted course receiving the most. Further, the well-educated and efficient members of the profession are well aware that mere medicine is but a subordinate part of the successful treatment of disease; much must always depend upon the ability to detect and guard against the causes which have produced it: in acute disease improper food, &c. will more than counteract the best directed medicine.

From all these considerations can it be doubted that the welfare of the sick and the respectability of the practitioner would be equally promoted by the correction of so erroneous a system, and by the adoption, in its stead, of another more consonant to reason and equity *?

The principle of the plan which appears to me the most likely to answer the double purpose of benefiting the public and securing an equitable remuneration to the practitioner, has been ably and unanswerably advocated in the tract before alluded to "by a true Surgeon," although the details may require modification; namely, that of remuneration for skill, instead of for medicines.

Let the general practitioner then receive a moderate compensation for each consultation requiring the exercise of his skill and experience; and let him freely furnish, without further charge, the medicines that may be necessary to the recovery of his patient, considering them as part of the means of promoting the end for which he is consulted. I should also recommend that the compensation, be it ample or limited, be

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* "That the interests of health and the preservation of life should be committed to any other than duly qualified and fitly authorized persons, is a monstrous absurdity; and that the charge and responsibility of such serious concerns, should not be as respectfully paid as the administration of worldly property, is equally absurd."—*A Letter, &c.*

made at the time of consultation, and be not suffered to accumulate, like an account from a chandler's shop. Even should surgical assistance be afforded, let it, unless in extraordinary cases, be put on the same liberal footing as the medicines furnished, as even the manual aid must be secondary to that exercise of the reasoning faculties which is necessary to render it efficient.

I am aware that the proposal above made is likely to meet with objection, as well from the prejudices of patients as those of some apothecaries whose profits would probably be rather diminished than increased by such a mode of remuneration.

I have hitherto avoided any consideration of that perversion of the healing art from the pure purposes of beneficence to a lucrative trade, the essence of which consists not in healing, but in what has been vulgarly, though not insignificantly, named *humbug*. I hope and believe that instances of the latter are the mere exception to the general rule, and that the members of the profession promote the welfare of their patients as their first duty. I doubt not that the wily arts of the crafty empiric, whether openly professing impossibilities, or shielded by diplomatic honours and resorting to the indirect though equally unworthy means in daily use, shall produce a much more abundant harvest of pecuniary profit than the utmost exertion of the philanthropic practitioner, whose only anxiety is to render his profession subservient to the diminution of human suffering*. I pity the former; I esteem and vene-

* I have known a man, now no more, calling himself and possessing the diploma of surgeon, take advantage of the ignorant and unfounded fears of a patient who supposed a sore throat under which he laboured to be venereal, and receive in advance ten guineas to cure that which he well knew would in the common course of nature spontaneously terminate in a few days. An honest practitioner would have received a single fee, and have set the patient's mind at ease.

rate the latter. The man, whatever may be his nominal rank in the profession, who has faithfully qualified himself for the performance of his duties, may rest assured that his very usefulness to the community, sustained by upright and honourable conduct, must secure to him a certain though a moderate competence. He may resign large fortunes, without regret, to his more artful competitor, the trading practitioner, whatever may be his rank or denomination.

It may be objected, that many patients are unable to pay at the time of illness: granted:—what then? Is it not more desirable that the practitioner should avowedly forego his remuneration, and attend the patient as a duty of humanity, rather than fill his books with bad debts, which will never be discharged? I have known many instances in which the vanity of friends, and not the peculiarity of the disease of the patient, has required consultations; one consultant has been called who has recommended the calling in of another of supposed higher rank, and meetings, name them consultations if you please, have taken place from time to time, in which the news of the day has occupied a greater portion of the private discussion, than the situation of the patient. One of the consultants has received *double*, another *quintuple* fees; whilst the general practitioner who has many times been called from his bed to introduce the catheter, or perform other urgent services, has never received one farthing; although the amount of consulting fees, if equitably distributed, would have afforded a sufficient, nay, an ample compensation for the whole of the professional services. The above is neither a solitary nor a supposititious instance; but one of which the parallel might be adduced too frequently to uphold the credit of the profession.

The subject of consultations has been a prolific source of jealousy. This would speedily cease were consultations, as they ought to be, made solely subservient to the welfare of patients. I have always considered it a duty to state to the patient or to his friends (as the circumstances might require), whenever a doubt of the nature of the disease or of the mode

of treatment to be adopted existed; so that the patient should have the benefit of a further opinion. Even when no doubt existed either as to the nature of the disease or of the appropriate treatment, but when I have believed the disease must ultimately terminate unfavourably, I have availed myself of the earliest opportunity of stating my belief, that the friends might have the option of a consultation should they desire it. I have always considered an honourable consultant, as an inestimable coadjutor—who confirmed whatever he approved, and suggested no other alterations than he really believed should tend to the benefit of the patient; but of others who have adopted an opposite mode of conduct, I need not express my opinion.

But it may be said, What can the medical profession do without assistance from the Legislature? In answer, I would ask, What assistance has the Legislature afforded to the physician and to the surgeon not practising pharmacy, in regulating the mode of their remuneration? Certainly none; for which they ought to be thankful, if they compare the liberal compensation which they receive, to the stinted dole which similar services receive in countries where the fees are regulated by law. The means of relief under disease must be afforded even to the lowest classes, and therefore the Legislature, when it interferes, must make that relief within the reach of the lowest. When thus fixed, liberality shuts its purse, does what the law requires, and nothing more. No one acquainted with the medical profession can doubt, that although neither physician nor surgeon could legally recover a guinea for a consultation, yet it is the customary fee; and unless the circumstances of the patient be very limited, the amount is not disproportionate to the service rendered, nor to the sacrifice of time, money, and mental energy, which must be made, before the education of either physician or surgeon be sufficiently complete to enable him to afford that efficient relief of which the patient may stand in need.

Let me inquire, in what the well-educated general practitioner is inferior to the physician or to the surgeon only?

Let the physician or surgeon show, if he can, that there is one solid advantage in his exclusive education which the general practitioner does not possess*. Do not let my meaning be misunderstood:—far be it from me to undervalue one class to raise another.

The physician, who has faithfully qualified himself for the duties of his office, who unites to these qualifications a high degree of scientific and literary attainment, and who honourably fulfils the duties of his station, is deserving of the esteem of every good man; and I revere him. But I am aware that such a high degree of excellence depends upon individual exertion and conduct, not on collegiate forms; I therefore revere the MAN and his virtues, not the title; well knowing that the latter is not an unerring indication of probity and wisdom.

To the surgeon who is in every respect qualified to fulfil his arduous duties, who to a high degree of scientific attainment unites the virtues of the philanthropist, I pay the willing homage of my esteem. He is as deserving as the enlightened physician.

The surgeon has been usually considered secondary in rank to the physician: the point is not worth disputing. But if the attainments required for each be dispassionately examined, I am disposed to believe that the duties of surgery demand higher and more extensive endowments than are generally believed to be essential to those of medicine.

The surgeon, to all the general information respecting

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* "The public should be distinctly informed, that medicine is built upon clear and substantial elementary foundations, and that the full scope of anatomy, and chemistry, and natural knowledge, is equally attainable by all men of common understanding; that afterwards experience in witnessing diseases and their treatment can alone make competent practitioners; and that on the extent of that experience, and on the clearness of apprehension and soundness of the judgment of individuals, must alone depend their claims to superiority."—*A Letter, &c.*

health and disease which it is meet for the physician to possess, must add an accurate, ready, and intimate knowledge of anatomy; not a common-place jumble of names, but that severe knowledge of the situation, structure, and uses of the various parts of which the human body is composed, which shall enable his judgment to direct his hand when operating upon the living body; to find readily that which he seeks, to avoid with certainty that which it may be dangerous to wound. This severe knowledge of the anatomy, particularly that of the limbs, may not be essential to the physician. Minute anatomy is often stated to be useless to him; and this impression is so general, that he contents himself with lectures and demonstrations delivered by professors, but rarely dissects with his own hands.

Unless I greatly deceive myself, the assumed inutility of a thorough acquaintance with anatomy to the physician is a dangerous error. I believe there is no royal road to the knowledge of disease; and that a high degree of excellence can only be attained through the medium of anatomy and physiology, or, in other words, by making the knowledge of the structure and functions of the body the basis on which the actual observation of disease and the effects of remedies may be raised as a superstructure*.

Moreover I am of opinion, that although the full and minute anatomy necessary for the performance of surgical operations may be dispensed with by the physician, he cannot be efficiently qualified even for the separate branch of medicine which he follows, unless he unite a sufficient general

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* I abstain from adducing instances of gross ignorance and of fatal errors, which "tell no tales." They are sincerely to be deplored. That such errors should be the natural consequence of deficiency in elementary knowledge, is no more surprising, than that a person should not be able to read accurately and fluently, because he had never made himself master of the alphabet.

knowledge at least of diseases which are assigned to the province of surgery.

The division of diseases into the provinces of medicine and surgery is purely artificial and not founded in nature; in nature the mutual influence of local and constitutional derangements upon each other admits of infinite gradation and variety. Hence it will be ascertained, whenever the physician or the surgeon is really qualified to secure to any sufferer the full measure of benefit which the science of medicine is capable of affording, that he effects it by no narrow or partial views, but by concentrating, as it were, the resources which are artificially assigned to separate departments of the profession.

But the surgeon, to this additional knowledge, must unite great quickness of perception and a high degree of manual dexterity, or he cannot fulfil the duties of surgery. These are not essential to the physician. When the progress of age so far diminishes the accuracy of sight, that the surgeon is no longer fitted to perform the operations of surgery; if his judgment remain unclouded, he is equal to all which the physician can lay claim to in the treatment of disease by medicine.

The high literary attainments of the physician, which add lustre if superadded to the competent knowledge of the duties, and to the honourable practice of his profession, become contemptible, if, instead of being the ornament, they usurp the place of useful and essential attainments.

To the surgeon anxious to improve his profession, I should recommend, that he cultivate the sciences, rather than literature, and that these sciences should be the demonstrative rather than the speculative. Such instances as the late Mr. John Hunter and others, sufficiently prove that a high degree of usefulness in the healing art may be compatible with very moderate literary acquirements; although I am far from undervaluing that general cultivation of the understanding of which literary exercises form a useful part. But I would distinguish the *substance* from the *shadow*, and not sacrifice that which is *essential* to that which is little more than ornamental.

The physician or the surgeon, who directs the use of medicines, must either combine an acquaintance with pharmacy and the principles of chemical science with his knowledge of disease, or he must be so defective in wielding the remedial means which he attempts to use, as frequently to defeat his own intentions *. It is therefore not presuming too much to assume that the really efficient physician is skilled in the knowledge of surgery and pharmacy; and that the really efficient surgeon is skilled in the general knowledge of disease proper to the physician, and also that he is not ignorant of pharmacy. Nevertheless there are anomalies in physic, who boast that they know nothing of surgery; and surgeons who boast that they know nothing of physic: although they daily prescribe it!

Even the outcast department of midwifery (for it forms no part of the examinations either at the College of Physicians or of Surgeons, or at Apothecaries' Hall) ought to be understood: for, although the puerperal state is for the most part free from peril; yet difficulties and dangers, involving the safety not only of a single being, but of both mother and offspring, occasionally occur, requiring as much skill and judgment as are necessary in any other branch of medical or surgical practice.

Having glanced at the education necessary to the physician and to the surgeon, it may be proper briefly to trace that of the general practitioner.

The well-educated general practitioner acquires during an

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* Whether the actual attainments of the higher departments exceed or fall short of this estimate, is not the object of my present inquiry. Should any one be desirous of ascertaining how far the supremacy claimed by exclusive bodies is founded upon superiority of attainment, he may find some assistance in directing his attention by consulting "An experimental Examination of the last Edition of the Pharmacopœia Londinensis; with Remarks on Dr. Powell's Translation and Annotations. By Richard Phillips. London. 1811:" and also the observations before alluded to in the Edinburgh Medical and Surgical Journal.

apprenticeship the practice of pharmacy and the knowledge of the elementary principles on which that practice is founded: or should his apprenticeship not have afforded sufficient opportunity, he avails himself during the period of subsequent study of the means of supplying that deficiency. He also witnesses numerous instances of disease under the treatment of others, becomes familiar with the doses and combinations of medicines in general use, and has frequent opportunities of gaining knowledge in anatomy and pathology, by being present at examinations of morbid appearances. In surgery he witnesses the treatment of the accidents and injuries of most frequent occurrence, and after observing the mode adopted by others, becomes himself intrusted with the dressing of wounds, ulcers, the assisting at operations, &c. and acquires a readiness in the use of his hands, and a quickness of observation, which cannot be taught by the mere attendance upon lectures. If his amusements be judiciously selected, they also contribute to the cultivation of his understanding, and to afford a dexterity of hand (by mechanical exercises), and a readiness of adapting the means to the end, circumstances which are of incalculable value in the actual practice of surgery.

After the termination of his apprenticeship he performs a course of studies, embracing the necessary attainments in anatomy, physiology, natural philosophy, chemistry, the theory and practice of medicine and surgery, including midwifery, and clinical observation. He undergoes examinations in anatomy and surgery, as a surgeon; and as an apotheeary, in the knowledge of the Latin language, in materia medica and botany, in pharmacy and pharmaceutical chemistry, in physiology, and in the knowledge of diseases and their treatment.

Hence it will be found that the education of the efficient general practitioner comprises not only all that is valuable and which appertains to the physician or to the surgeon separately; but that it is more comprehensive than that of either, and, being unshackled by antiquated academic forms, which have not kept pace with the successive improvements in the sciences

belonging chiefly to the present age, the general practitioner has the benefit of arranging and following his studies on that plan which may, on mature consideration, lead to the greatest share of really useful attainment.

It may seem a work of supererogation to dwell further on the claims of the general practitioner to the confidence of his professional brethren, and to that of the public. It is too obvious to require comment, that the great proportion of the inhabitants throughout the kingdom intrust the care of their health to this useful class almost exclusively. The medical duties of the public service in the army and navy are performed by surgeons, who are, in fact, though not in name, general practitioners; uniting the office of the physician in medical cases, the operations and manipulations in surgery, and compounding (either personally or by their assistants) the necessary medicines. I am aware that there are in these services a few physicians, and superintending surgeons, and also, in large depôts, apothecaries; but these bear so small a proportion to the whole, that it does not alter the general view above stated. That the surgeons of the army and navy have ably sustained the character of the medical profession, is sufficiently proved by the diminution of sickness in these services, compared with the frequency of disease in former times, and by the many valuable publications which have emanated from them.

The surgeons of county and provincial hospitals in this kingdom are, with very rare exception, all general practitioners; and such instances as those of Hey, Lucas, and many others, not to mention Cullen and Dr. William Hunter, who practised pharmacy in early life, prove that the improvers of the healing art are not confined to any single department of the profession. Nay, indeed, many of the brightest examples of medical talent have commenced their career as general practitioners.

Should it be objected that the education of the general practitioner is too extended to be perfectly attained, let it be inquired, Has it ever been an objection to the linguist, that he

was learned in many languages? or to the astronomer, that he was also a mathematician? Far from a comprehensive course of medical studies weakening the reasoning power of the individual, I am persuaded it will be found to be indispensably necessary to soundness of judgment in subjects connected with medical science.

The most intense application to a single branch of study will not preclude numerous sources of error; a sort of mental short-sightedness is acquired, similar to that of certain artisans employed in minute work, which disqualifies the individuals from observing and judging accurately of objects beyond their limited sphere of vision.

But when men whose minds are enriched with the stores of general knowledge, devote themselves to the improvement of a branch of science or of art of which they understand all the general bearings, the greatest benefits may be anticipated.

A candid and faithful investigation and exposition of the excellencies and defects of the various institutions relating to the science and profession of medicine is yet a desideratum: it could not fail to be highly useful; as it would confirm whatever was really valuable, and prepare the way for the correction of those errors and abuses which are incompatible with an art "whose humble glory is to do good."

It would be easy to show that the physician and the separate surgeon, whenever they really become efficient in their circumscribed spheres, do so by superadding those studies not provided for in their limited education; but which form an integral part of that of the general practitioner. But I abstain from illustrations which might be supposed invidious. I am well aware, that whoever has extensively examined the state of the medical profession in this kingdom can have no difficulty in adducing, how much soever they may be deplored, numerous facts demonstrative of ignorance and insufficiency, drawn not from any single class of practitioners, but from every department into which the profession is divided. I have, however, a more gratifying task in declaring my belief that at least as large

a proportion of exalted talent, useful learning, and genuine philanthropy, may be found among the members of the healing art as any profession can boast. I have had the happiness to know physicians and surgeons who have merited, as they have enjoyed, the highest esteem from all who could appreciate their exalted worth; but I must not conceal that I have known general practitioners, the fellow-labourers of the physician and surgeon in the cause of humanity, who have most faithfully fulfilled the duties of MEN, whether considered in their arduous professional career, or in their more retired character of sons, husbands, brothers, fathers, friends;—MEN, whom I have considered it an honour and almost a blessing to regard in the last of these endearing appellations *.

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* Many instances of exalted and dignified conduct in the various members of the medical profession might be adduced. The following, communicated by my friend Mr. J. Hayes, of Charlotte Street, cannot be perused without emotion by any one whose mind is capable of appreciating excellence in others.

"That practitioners of medicine are influenced by very different motives than those which too often are rashly and ungenerously imputed to them, might be proved by innumerable examples. The following instance will rank high in the estimation of all men who have a due sense of the real importance of the medical practitioner, and of the serious and even awful responsibility which attaches to his office.

"The late Benjamin Trye, of Gloucester, was a Surgeon not less distinguished for his scientific attainments than for his genuine philanthropy: amongst the manuscript papers examined after his decease there was found a Latin prayer, a language which he wrote, it appears, with great fluency and correctness, devoutly imploring of the Almighty that he might be enabled to render himself eminently useful to all who should come under his care; that he might never be permitted to yield to the temptations of pecuniary interest, nor convert into sordid gain the exercise of a profession, intended, under the sanction and blessing of an all-wise Creator, to promote his benevolent views in removing or lessening the various maladies incident to human nature."

It has been observed respecting another distinguished ornament

In conclusion, it may not be improper to recapitulate some of the leading principles, which I have endeavoured to elucidate in the preceding observations:

That the early education should be adapted to the future profession of the individual.

That habits of beneficence, of accurate and patient attention, and of persevering exertion, should be cultivated.

That the amusements of leisure hours should be rendered subservient to future usefulness.

That a medical apprenticeship should be so conducted as to combine the acquisition of general and useful knowledge with that elementary professional instruction which shall fi' the pupil for attendance on lectures, for clinical observation, and for efficient future study.

That the studies subsequent to apprenticeship, should be so arranged as to give priority according to their usefulness and facility of acquirement.

That a solid foundation in the knowledge of anatomy and physiology is an essential preliminary to more extensive medical attainments.

That an efficient course of medical studies should be performed, preserving and improving the previous attainments in anatomy, &c.

That a course of clinical studies and of pathological investigations should be so faithfully conducted as to qualify the student for the actual and arduous duties of his profession.

That the mean jealousies of professional rivalship, and the mercenary arts of a gainful trade, are unworthy of the medical character; the real dignity of which consists not in empty titles and distinctions, but in soothing the distresses and alleviating the sufferings of mankind.

"NISI UTILE EST QUOD FACIMUS, STULTA EST GLORIA."

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of the healing art, "Such luminaries in the murky atmosphere of a gainful profession, whose humble glory is to do good, are like the lamps of heaven; they cheer and enlighten us through those dark and fearful duties which touch the springs of human life."

POSTSCRIPT. Should any apology be necessary for the preceding observations, the writer has only to state that no one can be more sensible of their imperfections than himself.

He submits them to his professional brethren as hints, or materials for thinking, and in the hope that they may not prove without use, particularly to the diligent student: should this hope be realized, he may probably at some future period endeavour to supply the deficiencies of the present outline, and give it an extended form*.

Our great moralist has observed, "He that waits for an opportunity to do much at once, may breathe out his life in idle wishes; and regret, in the last hour, his useless intentions and barren zeal."

Piccadilly, 1823.

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* The plans which the writer has used in his investigations in pathological anatomy, and several suggestions respecting the registration of general results of practice, have been omitted; as it was found that they could not be rendered sufficiently clear to the student, without details far exceeding the proposed limit assigned to this paper.