

Specialism in medical teaching and examining / by Thomas Cooke.

Contributors

Cooke, Thomas, 1841-1899.
Bailey, James Blake, -1897
Royal College of Surgeons of England

Publication/Creation

London : Longmans, Green, 1897.

Persistent URL

<https://wellcomecollection.org/works/s8uyg5fz>

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

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



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

P. 6.8

J. D. Banting 4
with the Author's
Compliments

(7)

SPECIALISM

IN

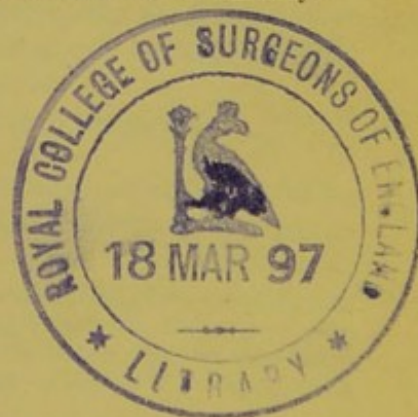
MEDICAL TEACHING AND EXAMINING.

BY

THOMAS COOKE, F.R.C.S.,

SURGEON (OUT-PATIENTS), WESTMINSTER HOSPITAL.

"Every year that present methods of teaching are in force dooms the professional career of a large number of men."—"Plea for Practical Work in Anatomy."



London :

LONGMANS, GREEN, & CO., PATERNOSTER ROW.

1897.

REVIEW:—

“ Mr. THOMAS COOKE has done good service in bringing this subject prominently before the profession. It is one that requires very thoughtful consideration with a view to reform.”—*The Lancet*

I.

THE MEDICAL STUDENT

IN MR. ANDERSON'S "ART IN RELATION TO ANATOMY."

MR. PRIDGIN TEALE AND THE GENERAL MEDICAL COUNCIL.

A complete change has taken place of late years in educational methods and results. Formerly teaching was in the main objective and practical. It thus interested the learner; and the progress of the latter was measurable and sure; relatively few men finally missed the goal, either in regard to professional efficiency, or in regard to passing their examinations.

Now, through a quite unprecedented extension of theoretical work, teaching covers more and more rapidly an ever-widening area, and is largely superficial and subjective; the student takes but little interest in work which does not appeal to the senses, and his progress is always doubtful either in regard to his education in the true sense or in regard to his chances of "qualifying."

Teaching used to embody mainly the "applied" science: The student rose by degrees, through a series of well-worked-out observations and manipulations, to the required level of efficiency; and the examination was but a kind of stepping over the stile, - almost a level crossing, - from the high road on to the field of practice.

Now teaching aims mainly at the passing muster at examinations, and is largely tainted with "cram." Much of the educational work we now see would appear to be "training" in the mere athletic sense, - in *mnemo-athletics*, so to speak, - learning being little more than systematic committing to memory, and facts being picked up, handled, and dropped somewhat like dumb-bells. There follows, in the matter of examinations, a kind of running-at-the-jumping-pole competition, the candidate either clearing the obstacle, - "passing" and "qualifying," as it is called, or "failing," - falling back exhausted and discouraged, and no more advanced than before.

Never were failures of the student's career so numerous and so irreparable.*

From a statistical point of view Mr. William Anderson deals admirably (Discussion on Art in its relation to Anatomy at the Meeting of the British Medical Association in

* "At least one-third of those who begin their medical studies," says the leading article (Address to Students) in the Students' number of the *Medical Times and Hospital Gazette* for the present year, "retire from the field before they have fulfilled their course." It is within the Author's distinct observation that the proportion of the complete and irrevocable failures at the stage of Anatomy & Physiology is now vastly on the increase.

See Prof. Struthers' remarks and Mr. Teale's Table of Rejections, page 22.

Writes Professor Macalister:

"We are brought face to face with a real and growing difficulty, and must come to a deadlock, unless some satisfactory measure of reform in our method of education be devised."

London, August, 1895) with the question of anatomical teaching to medical students, "ever ignorant of the knowledge that the physician and surgeon should possess." Continues the talented writer, "Too much time is wasted by the ordinary student on making bad dissections," . . . "on the sad havoc that too often represents his practical work," . . . "on the abominable mutilations which desecrate our anatomical tables," &c.

It is evident from the above admissions that the view has at least been entertained as to the present educational position, which the Author submitted in his "Plea for Practical Work in Anatomy."

The Author would like to compare notes with Mr. Anderson with reference to the proposed remedy.

Reproducing somewhat his remarks in the course of the discussion above referred to, the Author would press the view that present educational methods fail because, unfortunately, it is more a matter now-a-days of knocking youths into such shape as shall just fit the examinational hole on the examination day, than a question of bringing out and developing men's faculties, so that they shall ever observe, think, and act to advantage.

Antipodal to this was the system that prevailed but a few years ago. Then, especially in regard to Anatomy, it was the learner who made the main effort, merely guided or directed by the teacher.

Writes Professor Macalister:

"Practical anatomy was a discipline of incalculable value, for not only was the knowledge acquired an end in itself, but the method whereby it was gained was the most valuable part of the entire medical training. . . . Anatomy occupied a unique position in the curriculum. In all other departments the student had no alternative but to blindly accept the dictum of teacher or text-book. Here he was trained to use his eyes and his hands; here he was educated to translate the impressions made by the objects of his study on his senses into words, this enabling him to check the descriptions in his books, or those taught in the lecture room, by comparing the realities under his hands with the verbal accounts of them given by his teachers: *In the dissecting room every student was an investigator.*"

Wrote the Author to the *Lancet*, November 4, 1893, - Mr. Timothy Holmes and a distinguished "Former Teacher of Anatomy" being among his supporters in the next issue of the journal:—

"Then teaching represented a *vis a fronte*. Examinations were few and far between. The teacher stood high above his men; and, beyond it being his duty to see that their dissections were honestly done, he was in no way responsible for their progress, or apparent progress - i.e., success at examinations. He led the way, always presenting a high standard as to aims and ability. Followed who liked; there was no compulsion; but the majority of the men followed, and followed well. Those who did not got at least good sound principles, which generally bore fruit after a while. Now there are numerous and segmented examinations, and teaching has become a *vis a tergo*. When the men are examined too frequently, the more immediate and apparent, though less important, result of the teaching is brought home closely to the teacher, and it is practically the teacher who is examined. His pupils must pass in fair numbers, or it is he who is blamed. The teacher must then endeavour to make men's work 'easy,' and to push them on by 'set demonstrations.' He must explain instead of doing. He must draw instead of showing.

Nolens volens, he becomes a 'coach,' an *employé* paid to get men through their examinations; one soon considered to be in the pay of the men; one whose humble duty it is to obey the constant cry, 'Give us a grind on this part and on that;' one who is to be a walking book to save the men the trouble of reading, who is to follow in the fads of the day, who is to be led; – not one who is to lead. The rest follows. The high example is lost; the standards are lowered; the floodgates of demoralisation are opened. 'Cram' reigns supreme everywhere and from beginning to end, none deploring the course of events more than the most earnest teachers themselves."

What we have now corresponds to the forced hot-house growth fitted for immediate consumption or temporary decoration, – not the sturdy natural vegetation of permanent fruit-bearing capabilities. We look to the "turn out" made "to sell," not to the honest home product. Is this wise where such responsibilities are involved?*

What is wanted, in regard to Anatomy, is a return to the simplest, plainest "common or garden Anatomy," as some call it disparagingly, but taught *à la Ellis*, and in the spirit of Professor Macalister's remarks: *our one standard should be the HUMAN body THOROUGHLY dissected BY THE STUDENT.*

And this should involve no prejudice to the study of scientific Anatomy.

It is submitted, however, that the two objects are unrealisable together by the older methods of dissecting, adapted, as they are, to a two or three years' course of little but human Anatomy.

The Author would not willingly exult over gains, even in the direction in which he has worked his hardest and best for many long years, but he would submit that the double object is easy of attainment by the methods of the "Dissection Guides" referred to at the end of the volume of Tablets, – the distinction between, and separation of, two things essentially different (theoretical Anatomy and practical Anatomy) being once admitted, which is pressed for throughout the said volume.

§.

One thing the Author knows, and asserts most emphatically, on the strength of long experience – namely, that it is easy to get the average youth fresh from school to take an interest – indeed, an *intense interest* – in Anatomy, as taught *practically*, and as answering his "questioning cogitations, unformulated perhaps, but none the less real, as to 'how the thing works.'"[†] It is but a truism to put it that the main object of education is to maintain and expand such interest, – the mainspring of all success, be it remembered, whether to the student or to the future practitioner, – and to apply the same in

* Too much is being done for the student; and the important distinction is neglected between [1] knowing in the sense of merely remembering what one may have been told, or may have seen more or less casually, – (such "communicated" knowledge ever remains, so to speak, *something outside one*), – and [2] knowing through having found out or verified by one's own discrimination, by the active exercise of one's own senses, by one's own effort, – (such knowledge – true knowledge, it might be termed – becomes a *permanent part of one's nature*). It is only the passive process that can be subjected to definite and multiple codification, such as now prevails. The active process, the vital process, which alone, it is averred, has value, is impeded, or altogether inhibited by over-regulation. True knowledge is not a question of "remembering;" it is a question of ingrained mental and moral reflex action.

† "What is the primary want of the physician or surgeon in regard to Anatomy? Is it not to acquire visual and manual familiarity with the human frame? Is it not to know, in the sense of almost seeing through, and, as far as needs be, of dextrously handling throughout, the individual man, woman, or child

succession to every branch of the Curriculum. A favourable beginning – with Anatomy taught as above – is at least a good start in the paths of medical study.

§.

Honest training or true knowledge is much in the nature of drill. In an applied science, knowledge is not so much an aim in itself, as of value in that it expands into applications and developments. Knowledge must yield her increase in the very hands of the learner. Now in Anatomy all merely abstract or theoretical knowledge is sterile of applications and developments. The man who knows about Poupart's and Gimbernat's ligaments, the femoral vessels and the spermatic cord, in the true way, – *i.e.*, from repeated actual dissections, – will do the right thing unhesitatingly in a case of hernia. But the man is paralysed, and must remain incapable all the days of his life, who has to look up to the ceiling before he can make sure of the whereabouts of the rings, or of the the epigastric artery or the vas deferens. What is drill? The soldier on the battle-field is not necessarily, as a man, a braver man, – that is, a man *naturally* less influenced by danger, – than other men; but the point is that his mental acts and his emotions respond fully and surely in a pre-determined fashion to the position before him. So it should be with the surgeon, if he has been properly *drilled*. If he has not, he will never be equal to the emergencies that are bound to present. Mere theoretical knowledge fails through being *devoid of the element of drill*.

Medical men should be *drilled* in practical Anatomy. For their needs, Anatomy should be learnt all but entirely by dissecting.

§.

The view must be strenuously controverted that recent advances in surgery are in any way connected with the form of Anatomy now being pressed to the front. To such view the Author would oppose the direct negative (distinctly supported by weighty evidence adduced elsewhere), that the *falling-off in surgery*, so noticeable of late except in the hands of the few, is the result of modern educational programmes.*

The adoption here of the method of argument of a well-known citizen of ancient Rome, whose every utterance wound up with, in some form or other, "*Delenda est Carthago*," will, besides relieving a paper already long, best meet the requirements of

he is auscultating or percussing, or whose unconscious form lies under his knife on the operating table? What is it that will give him practical insight into the actual case before him, quickness in understanding its bearings, fertility of resource in dealing with its requirements? Is it not mainly the trained hand that makes straight for the right osseous projection, the educated finger accustomed to the feel of this structure and of that, the sharp eye familiar with the most insignificant guide-point, and which recognises at once a little bit of an exposed tendon, or a certain small nerve, or a thin muscular plane. What serves morphology here?"—(PLEA, p. 302.

* "The case might rest on the weighty words of a Member of the General Medical Council, Dr. William Bruce, the direct representative for Scotland. 'I unhesitatingly affirm,' writes that gentleman [letter to the *British Medical Journal* for June 16th, 1894], 'that men are now being turned out as qualified, who are *not safe to be trusted with the lives of their patients*. Men pass, and pose as doctors, who are not in the true sense fit to appear on the register of duly qualified medical practitioners, and who, as such, are *nothing more nor less than frauds upon the public*.'"

General practitioners are complaining of Hospital competition. Why is this? "Patients crowd the out-patients' rooms of an infirmary, or else place themselves under bone-setters or sham oculists, for operations that should be done by the general practitioner in his own surgery." . . . "The reason why so many practitioners are afraid to undertake the simplest operation, or to reduce a compound fracture, is that they have forgotten," or never learnt, "*their Anatomy*."—Letter to "*British Medical Journal*," October, 1893.

the discussion initiated. Fragmentary comment, here a little and there a little . . . "Delenda est . . ." "Delenda est . . ." will be more convincing, in this matter, it is believed, than any one piece of lengthy dialectics.

May, therefore, the newer parts of the volume of Tablets be glanced at. They are not many, and it will easily be seen what they are: they are printed on lighter coloured paper than the rest. The Author trusts that the reiterated monitions will be pardoned, which emanate from a deep conviction, and an honest benevolent purpose.

§.

Much to the Author's regret, the Tablets have now become, on the one hand, a brief both for Dissectional Anatomy pure and simple (and incidentally for "*Scientific Anatomy as taken alone, and apart from Dissectional Anatomy*"); and, on the other hand, a heavy charge-sheet of indictments against the attempt to blend, fuse, or in any way combine, forms of Anatomy of different origin and different bearing, which, it is contended, should stand each on its own footing.

Anatomy? What is Anatomy to-day? Anatomy is of different stamp from what it was. The point of interest has shifted, and the very meaning of the term is altered. Anatomy used to mean the taking to pieces of the human body by dissection, and the making out of its structure (naked-eye structure) with knife and forceps. Now Anatomy is made to mean the gathering of information from *any source whatsoever*, – physiological experiment, pathological investigation, inductive research of all kinds; and the main interest is made to attach to such investigations as the student *cannot himself* repeat. Dissecting is thus robbed of the leading position the art of an Ellis or a Rainey, or, better, of a Holden or a Heath, formerly occupied. And the plain Anatomy of Man is fast becoming, to the student of to-day and the responsible practitioner of to-morrow, to the one who is to deal with Man's ailments, a matter of quite secondary importance!

§.

The question here raised is one of such supreme importance, not only to our profession, but to the community at large, and not only for our time, but for the age which is opening upon us, that much will be forgiven the Author if, in the ardent advocacy of views which he holds to be true, he has been guilty here and there of something looking, perhaps, like Vandalism.

There towered before him three great names, ALEXANDER MACALISTER, CUNNINGHAM, BLAND SUTTON, – all summed up, in a sense, in that watchword of modern anatomists, QUAIN.

The Author's island rock was GRAY, – the *old* Gray, the Gray based upon dissectional work pure and simple: the Author is primarily a Surgeon.

He has stood by his ramparts.

He has faithfully delivered his message, supporting it by argument running through the Tablets from cover to cover.

After all, the issue between the Author and the eminent authorities named, and others, is simply a matter of *methods* and *arrangement*, a matter of *when* and *where*. The Author's contention is this : Dissectional Anatomy FIRST, AND ALONE TO BEGIN WITH ; scientific Anatomy not to be sacrificed, but to come AFTERWARDS.

§.

From the point of view of *scientific progress*, nothing can be more admirable than the extraordinary amount of work in all directions done of late years by the younger generation of medical men. But this work has lacked balance. There has been too much of a rush for new things to the neglect of old ones which were good, and for new names even when the old ones were better.

§.

The new things have generally been such as are of difficult demonstration, and have largely to be taken on the faith of this scientist or that. An abstract tendency has thus come to the front, which has favoured, in high quarters, "general conceptions" as opposed to direct observation, -- in regard to the lesser lights, dogmatism resting on high authority as opposed to demonstration, -- and, at lower levels, teaching by reiterated statement, and learning by "cram," as opposed to the older methods of student-verification.

§.

Now dogmatism is all "black and white." The view it submits is sharply defined, as when things are seen by focused lime-light; the brief formula reached is distinct and all-comprehensive, somewhat, -- if one may so put it, -- like a sentence in the Catechism.

§.

Here is a something which at first seems to square in with all interests. It suits the progressive scientist. It suits the text-book writer. It suits the lecturer. It suits the hard-worked student. It suits the less responsible examiner. It accords with everything, . . . *except the requirements of the future practitioner with patients to treat.*

§.

There is another exception,--that of the *poor student* before much of his studentship has elapsed, and when in a corner as an examinee. The position then runs much on the

lines chalked out in the pompous advertisement of a well-known industrial appliance, and what follows: "*To save time is to lengthen life.*" Yes, in a sense, if the saving is by means of advantages which remain *personal*.

§.

Just the reverse otherwise. For the law of the working wage, "The more you can do, the more you *must* do," then comes in. – You have learnt to "cram," and you can get up so much more in a given time, you can so nicely steal a march over others, if you "cram;" so now "cram" you must.

*But where is the relative gain if all "cram"? Rather, what is not the loss, to each and all?**

§.

One must spurt a little in racing, it is pleaded. But what if the track is so long that, to cover it at all, all must begin to spurt at the first lap?†

* It is submitted that, *unless he passes early*, a man who gets at all fully into the trammels of "cram" is lost, not only in regard to practical purposes, but even in respect of passing his examinations. The "crammer" can but learn to quickly forget again. And the oftener he learns and forgets, and learns and forgets again, the more completely does the subject of his study lose for him all its earlier and natural attractions. The more he traces and retraces, the more deeply he furrows out, and again furrows out, the old abstract grooves he has worked in so long, the more he tires of them. The further he advances, and the wider is the ground he seems to cover in the short spurts which alone he can now tolerate, the sooner everything recedes from him; and the more he sickens of the effort, and gets to loathe it. The more one has "crammed," the more one *must* "cram" (unless one changes one's policy altogether); but one crams to less and less purpose, and finally with, so to speak, vanishing results. What can a man then do, but give up the struggle in despair, as more and more are doing now-a-days? "Cram" is a will o' the wisp. The system is a delusion and a snare. Only failure, and failure after failure, greet useless and demoralising efforts to achieve painfully and by "cramming" what can only be done, – but can be done with incomparable benefit, and the healthiest of mental enjoyments, – with just a little honest practical work.

† The men all say now that they *must* "cram" in order to get up their work for their examinations; and one cannot doubt that they honestly mean what they say.

Though it is impossible to deny that the tendencies that make for "cram" have vastly increased of late years, the Author's contention is that "cram," even under the utmost pressure, is yet in every respect a *fatal mistake*. "Cram" is an avowal of weakness: It always pays to rise to the level of one's position; What is the position? It is this: Recent research, mainly of the younger school of scientists, has overloaded up-to-date text-books and lectures with new facts, or presumed new facts, and has so extended the various branches and departments of knowledge, that these are *in name only* what they formerly were. The strain on teacher and student alike has enormously increased, and both teacher and student not unnaturally seek relief by all means available. Says the Author, Divide: Distinguish between (1) what you *should* take in, of the new matter now thrown on the educational market, – and take this in well and practically, – and (2) that which will not stand the test of time, – the paper anatomy of all kind, – and this merely skim over. It is a relatively easy matter, he affirms, to learn practical anatomy *practically*, if only the work be taken in hand alone. And certainly nothing can well be easier than to learn theoretical anatomy, if only this also be taken alone. *The whole thing is a mere question of first separating the "bundle of sticks" in "a dying father's advice to his children," and breaking them separately.*

§.

Meanwhile, "We do not think," writes the *Medical Times and Hospital Gazette*, "that Mr. Cooke is far wrong when he says that 'every year that present methods of teaching are in force dooms the professional career of a large number of men.'" . . . "These may seem strong words, but we do not think that the state of affairs merits any less forcible language. What Mr. Cooke sees is only what other teachers see, and what we ourselves see daily."

§.

There is an able and many-sided leader of the profession, whom the Author conceives to have been right from the first, and who, in this matter, has sacrificed office to duty. It is Mr. Timothy Holmes. A letter from Mr. Holmes to the *Lancet* will be found in the issue of that Journal for November 11th, 1893, which letter was followed by a leading article of commanding importance, which appeared in the issue of January 20th, 1894. Both these communications, and others, would also be found in the "Old and New Schools of Anatomy."*

§.

All honour to Mr. Pridgin Teale and Dr. Pettigrew† for their recent courageous denunciation at the General Medical Council of the present deplorable system.

It is submitted, however, that the rock-bottom facts have not yet been reached, from which an advance can be made.

The real cause of the present trouble was pointed out by Mr. Timothy Holmes at least ten years ago!

* "The Old and the New Schools of Anatomy ; or Both sides of the question of Anatomical Teaching : Being conflicting expressions of opinion by various Writers (Prof. Macalister, Mr. Timothy Holmes, A Former Teacher of Anatomy, Mr. T. Cooke, Writers on the Staff of the *Lancet*, *British Medical Journal*, &c., &c.) put together in sequence, and in the form of a Debate, by Thomas Cooke, F.R.C.S. ; there being added, in illustration of the two opposed standpoints, a condensed abstract of Mr. Sutton's views, and Mr. Cooke's views, on the Fasciæ, &c., taken from the 10th edition of the *Tablets of Anatomy*." Longmans, Paternoster Row, 1894.

† Said Dr. Pettigrew : "The present system has broken down and failed. There is too much examination and too little education. It is education that makes or mars the man, not examination. Examination confers nothing upon him. Education should be the beginning, the middle, and the end of the function of the General Medical Council."

Says the *Lancet*, quoting from Mr. Teale's figures : " In 1861, medical students were rejected at the rate of 12·4 per cent. ; in 1892, at the rate of 39·3. Do these statistics mean," continues this authority, "that the present medical student is, to the extent of more than one in three, inferior in professional knowledge to his predecessors of thirty years ago?"

In regard to useful practical knowledge, the Author believes that the present medical student is inferior even to a far greater extent than suggested to his predecessors of thirty years ago.

II.

SPECIALISM IN TEACHING AND EXAMINING; THE INFLUENCE OF THE TEXT-BOOKS IN USE.

A STUDY OF THREE DECADES.

It is submitted that the cause of our educational troubles is not so much the multiplicity of examinations as something lying deeper, and of which the multiple examinations and the excessive proportion of failures are but epi-phenomena, or collateral consequences.

Endeavour will be made to establish this.

Attention will specially be called to those foster-mothers, so to speak, of professional men, the text-books which were in use when they were students. And at least a connected view will be submitted as to the influence of these, and of their authors, the teachers of the day.

A postulate will no doubt be granted:

Examining is a function conducted on behalf of the public. Its one object is to ensure that none be admitted to the Register who are not competent to practice to the all-round advantage of the public. The term "qualification" is not intended to convey, it is taken, of any practitioner, that he is the best man he could possibly have been made, much less that he has not his superior in the field. But it should convey that he is a good all-round man, and one who, if he gives himself out, through special circumstances, as an authority in any particular branch, may at least be taken as a competent judge in such matters, and one presumably to be relied upon.

When the Author came to London in 1870, Gray, Ellis, Heath, and Holden were relatively new books.* The oldest of these, Ellis and Gray (the latter published in 1858), were circulating mainly in their fourth or fifth editions. The books which, though distinctly losing ground, yet largely held sway, were Ward's Osteology, Wilson (8th edition), with Power on the Arteries, and, as a small *résumé*, Meads's manual, - which had all come out in the forties. Within a few years, these latter books had disappeared, and Gray, Ellis, Heath, and Holden had come well to the front.

The men now over 50 or 60 years of age, the men in high office, including our councillors generally, our senior examiners, the consulting physicians and consulting

* These well-known treatises are briefly referred to under their authors' names.

surgeons to our hospitals, were mainly brought up, in regard to Anatomy, on Wilson, Power, and Ward.

Let us move forwards ten years.†

The men who are now in active service, the men in solid and well-established repute in general practice, or who are now the *acting* physicians and surgeons to our hospitals, mainly learnt their Anatomy either from Gray and Heath, or from Ellis, or Holden.

Is there any marked difference, it may be inquired, as to general bent or character, between the two generations of men referred to? All will doubtless agree that there is not. They form a well-united group.

No more marked difference is there, on the other hand, as to essential characteristics, between the two sets of anatomical books they respectively read. These were all honest, practical, or "*dissectional*" books, as we might now term them.

All these men learnt their Anatomy by *dissecting*, and learnt it well.

This is the one dominant factor in the position they now occupy.

The physiological companion to the books referred to was the "old Kirkes," first published in 1848, – a long-respected book, indeed, – with which the name of Mr. (now Sir James) Paget was long and intimately associated, – but at which most of the younger men, now-a-days, would scarcely repress a smile, – deserved? It is thought not.

Let us advance another decade. We come, as regards hospital men, to the younger aspirants to consulting fame.

Different writers altogether have influenced these.

In 1877 came Foster, in physiology, which soon worked a revolution.

The methods of the new book, the experimental methods, were incompatible with the older, or descriptive ones. They dealt largely with small things taken individually. The older methods dealt with broad conceptions grouped together and subordinated.

The two systems were like oil and water. They could neither be fused nor armonised.

† It is assumed as roughly correct, – sufficiently so for the purpose of the present argument, – that, in round figures, medical men begin their studies at about 18 or 20, qualify at about 23 or 25, enter upon the more responsible part of their career about 28 or 30, and remain in harness till about 60 or 65. Deducting 30 or 40 from the present year of grace 1896, lands one in or about the fifties, when the gentlemen above referred to in the main began their medical studies, largely under the influence, in regard to Anatomy, of the authors just named. Moving forwards ten years brings one into the sixties, when anatomical studies were being distinctly influenced by Ellis, Gray, and their co-temporaries.

There is not the slightest doubt in the Author's mind that it is Foster that led to the severance of Anatomy & Physiology at the old "primary," now second conjoint examination, and to all that has followed.

The good all-round men we had as examiners some fifteen years ago could not follow Foster with the "interminable array of details" connected with the "nervous system and electrical experiments therein," now referred to by Mr. Mitchell Banks as forming "one department alone more extensive than the entire subject used to be." "But what," continues Mr. Banks, "is the result of the change? That endless time is spent in galvanising frogs and making tracings on drums, while only the other day one of our medical staff complained that his clerks seemed to be ignorant of the simplest functions of the liver or kidney."

The good all-round character of the men is now obscured by specialism.

The anatomical counterparts of Foster and other physiological text-books of the new school differ *in toto* from the older models, Wilson, Grey, Ellis, Heath, and Holden. They differ from these in principle. It is not a question of degree, but a question of kind. There is as distinct incompatibility between the two sets of books as there was between Kirkes and Foster. The Anatomy of the new school is based upon, – is evolved from, – the sciences of embryology and morphology.* Biology, – the principia, so to speak, of the wider subject, is its very life-blood. The new anatomy could not be taught at all, except on an introduction of biology. Mr. Teale wonders at the sudden introduction of biology in the first year of the five years' curriculum. The move might have been foreseen. Indeed, the introduction of biology, the breaking up of the examinations, the five years' curriculum, are all the simple consequence of the rising influence of the new school. The new Anatomy is a system of, at best, verified deductions. The gist of its teaching is, Gather what you would expect to find in man from the study of the lower animals, and then look and verify, – or what you can't verify for yourself, let others verify for you.† This is diametrically opposed to the old doctrine: *Take your knife and forceps, dissect, and see for yourself.*

The most precise expositions of the old doctrine could not be dressed up in the new garb. They have fallen, or are falling, out of the ranks. Ellis, the dissectors' book

* There is a third pillar of support to the New School Anatomy, the research for what Sir Dyce Duckworth has recently termed the "infinitely little," – the research for that which had not previously been noticed, which can scarcely, or cannot at all, be noticed by the rank and file of anatomists, – and can only be seen, and under specially favourable or carefully prepared conditions, by at most a few favoured observers. Of what use is such Anatomy to the medical man? Of what use for guidance in practical matters is that with which only a few can be familiar, and others can learn about at best by reading? The need, the imperative need, of every man in practice is the Anatomy that every man can "see and handle," and that every man, if he is honest to his profession, will "see and handle" throughout

† "Modern Education," says Mr. Tobin, "teaches us to see with the eyes of others, rather than with our own."

par excellence, shorn of its thoroughgoing preface, is an old book now. Holden is no more.* Heath has been seriously damaged.† Gray somewhat so.‡ Cunningham is taking the place of both. Only the versatile Quain could be transformed.

It is in 1884 that specialism gained official recognition. It is in 1884 that separate examiners in Physiology were appointed by the Colleges of Physicians and Surgeons.

Of course this meant separate examiners in Anatomy also; though few saw it at the time.

Then began our rapid decline, – directly in regard to Anatomy and Physiology,‡ – indirectly in all educational matters.

Freed from the former physiological counterweight, the examiners in Anatomy were more or less led away by the new gospel of specialism. Dazzled by the glittering vistas of the rising school, they became in their turn more or less specialised, more or less distinctly the converts of the enthusiasts (scientific enthusiasts) of the University triposes.§

* Up to date; † as regards simple dissectional matter. It will be seen in what sense the above criticisms should be read.

Fancy Ellis and Macalister fused into one, – the two royal “*Freres Ennemis*” (in regard to doctrine) on the same pile, – their very flames parting asunder.

Macalister’s Anatomy is a work of genius. It is an admirable book, the grandest, perhaps, of anatomical books extant, but as an *expose* of scientific Anatomy, not of the Anatomy primarily required by the medical man.

‡ Such a thing as a kidney sliced in two was a totally new object to a truly unfortunate candidate duly signed up for the second conjoint examination in July last. The candidate is the son of a brother medical man, and had been for three years at one of the large medical schools. The young gentleman pleaded, – in perfect honesty, no doubt, – that there were many of his mates who hadn’t seen a divided kidney any more than he had, – except as a dish on the table!

§ Biology is not to be looked upon simply as a new subject. It is the embodiment of a *new standpoint*, from which the whole of Anatomy is to be looked at in a fresh light: “The necessity,” writes Professor Macalister, “of giving the medical student a course of biology before he begins the dissection of the human body, and thus introducing him to an account of the Anatomy of Man studied from the morphological standpoint, and as a member of the great animal series.”

Introducing the student to *an account*, such is the true working of the new school. New vistas are aimed at, and as these cannot be opened out through the simple examination of the human body, biology is brought in, – brought in as introducing *an account* of Anatomy. The student is now to learn his Anatomy, – and similarly all other branches of the Curriculum, – largely by listening to his teacher. The new school largely substitutes the activity of the teacher for that of the student. It makes the latter, to use the words of Sir William Stokes, as quoted by Mr. Teale, “a puppet in the hands of others, rather than a self-relying reflecting being.”

To afford opportunity to drive in this extended account, the Curriculum must first be lengthened. Then the examinations must be multiplied: The student taught, instead of being left to learn, – taught largely, as in Bible history, by pictures, – cannot be trusted to remember what is, so to speak, merely poured into him, and must be *made* to remember, and to this effect examined at short intervals.

It is quite true that, *in principle*, the new school insists strongly on practical work. “One part dissected with care,” writes Prof. Macalister, “is worth a dozen hurried over.” Indeed, the zeal and personal example of the Leaders is admirable; but the field of work has been so enormously extended that theory and practice cannot go hand in hand. The noblest aspirations notwithstanding, the *fact* is as above stated.

Then came the flood of books, books, books, with which we are now overwhelmed,* the reign of "cram" and of fear of examinations,† the collapse of everything useful.‡

Specialism magnifies small things, and often depreciates the more important ones. It is specialism that piles up detail upon detail, detail upon detail, till it makes a part of a science a science in itself, the square foot or two of the research-worker as broad as the entire compass of the "old acres dear" of learning, — commensurate indeed with the opinion that the research-worker forms of himself.§

It is specialists, as teachers and examiners, that Mr. Banks has in view in the following passage; hence the Author quoting it, though he certainly thinks better of examiners, and of teachers also, than Mr. Banks, as will be seen elsewhere:—

"I have found that any appeal to teachers is absolutely hopeless. If you talk to them collectively, they will raise a harmonious chorus to the effect that the modern student is overweighted by the mass of information thrust upon him; but if you ask any single teacher to abate some of his demands, he will

* "Many books read badly," writes Sir William Stokes, "and failure, not through want of diligence and honest conscientious work, but simply through brain exhaustion."

† "The regulations armed with a revolver in the shape of examinations," writes Mr. Tobin; "The student wearied and weighed down, and with a sword of Damocles over his head in the shape of an annual examination," writes Sir William Stokes. Even "industrious students," writes Mr. Teale, "dare not tear themselves away from the drudgery of book-work."

‡ Woefully deficient in their fitness and adaptability to practice." . . . "Not the capacity for simple observation of the cases that come before them, not the power of turning their knowledge to profitable use," writes Mr. Teale.

May one recall here the burning words, already quoted, of Dr. William Bruce, the Direct Representative for Scotland on the General Medical Council: "I unhesitatingly affirm," writes that gentleman [letter to the *British Medical Journal* for June 16th, 1894], "that men are now being turned out as qualified, who are *not safe to be trusted with the lives of their patients*. Men pass, and pose as doctors, who are not in the true sense fit to appear on the register of duly qualified medical practitioners, and who, as such, are *nothing more nor less than frauds upon the public*."

§ "He thinks himself a Cuvier, an Owen, a Darwin, and a Huxley rolled into one," says Mr. Banks, "as compared with poor old Gilbert White; while, in the majority of instances, he is but a hod carrier or a bricklayer's assistant in the building of the house of science."

The passage is apposite and charming, and worth quoting in full:—

"Let me essay some simile, such as may give you a general idea of the difference between the education of to-day and that of my student time. You have all read White's *History of Selborne*—well, perhaps half a dozen of you have—but at any rate you all know it by name. In his book you will find the old gentleman gossiping about some bird which he has studied. He has watched it building its nest and rearing its young. He knows the shape and size and colour of its eggs. He knows what it lives on, and where it finds its food. Its plumage, its song, its habits of migration, its means of defence against its enemies,—all these things he has observed for years, and now records in such a happy way that you wish to go and imitate him. That is the old-fashioned science of Natural History. But the natural historian of old has been superseded by the comparative anatomist of to-day. He takes White's bird, plucks off its feathers as of no account, and makes a careful dissection of its muscles. Also he studies very minutely its cranium and its girdles. Having drawn many diagrams of these, he writes a very dry, semi-mathematical account of them in the proceedings of some very learned society. Having treated several birds and beasts after this fashion, he is known as an original worker, and is crowned in due time with the highest scientific laurels. He thinks himself a Cuvier, an Owen . . . &c."

emphatically inform you that what he teaches is the minimum of his subject, and that it cannot be reduced—no, not by one iota. Rather than not teach his subject thoroughly and completely, he would prefer to give it up altogether. The chemist wishes the student to have a sound knowledge of chemistry; the biologist protests against a mere superficial acquaintance with his subject; the physiologist declares that he will be a mere nonentity, if not a thoroughly trained physiologist. What the pathologist will want him to be heaven only knows. The teacher always pleads in justification that he is compelled to extend his course to satisfy the unreasonable demands of the examiners. This is a cunningly devised fable; for, if you go to tackle the examiners for their crimes you find that they are all teachers. When the examiner is examining he calls for more and more knowledge from the student—then, Presto! he changes his coat, becomes a teacher, and announces that his course must be enlarged to meet the iniquitous requirements of the examiner!"

It is submitted that specialism, and consequent "cram," supply the true explanation of present evils, — the multiple examinations, the real ignorance that prevails notwithstanding the lengthened Curriculum, the excessive percentage of failures, — and of failures in the worst sense, of life-failures, — even when brilliant examinations have been passed.

III.

COMPULSION; PERSUASION.

Summing up will emphasise the leading points.

It is not the object, however, of the Author to deal with medical politics. It is for principles only that he seeks to gain acceptance, and examples only that he seeks to adduce. He gives the views of others, - of Leaders, - not his own. He quotes; but, except on one or two points, he attempts no conclusions:—

"Students . . . woefully deficient in their fitness and adaptability to practice; . . . not the capacity for simple observation of the cases that come before them, nor the power of turning their knowledge to profitable use," writes Mr. Teale.

"Their whole learning has vanished in a few months;" "steadily deteriorating;" "harassed," "vacuus studens," writes Mr. Mitchell Banks.

"I unhesitatingly affirm," writes Dr. William Bruce, the Direct Representative for Scotland on the General Medical Council, "that men are now turned out as qualified, who are not safe to be trusted with the lives of their patients. Men pass and pose as doctors, who are not, in the true sense, fit to appear on the register of qualified medical practitioners, and who, as such, are nothing more nor less than frauds upon the public."

Dr. McVail, Crown Member of the General Medical Council, addressing the Council:—

"It is a most remarkable thing that the representative of . . . should tell us at this time of the day, and after all that has been done to establish a satisfactory Curriculum, that the candidates who go up for the College examinations cannot be up in medicine, surgery, and midwifery at the end of five years of study, and must be allowed to take each subject separately, - that is, to come back for examination in medicine after passing in surgery, and in midwifery after passing in medicine."

Very just demands have been put forward of late for the extension of medical education in various directions, *e.g.*, in practical midwifery and in bacteriology. In both directions the most praiseworthy efforts have been nugatory.

Why?

Because

"The student has come to the bursting point," writes Mr. Mitchell Banks. (The entire passage is quoted on page 3 of the accompanying leaflet.)

"Unless the student knows that he will have his knowledge of any branch of the profession tested at the examination table," writes Mr. Arbuthnot Lane, "he cannot be relied upon to make himself familiar with its details."

"The reason is not far to seek," adds Dr. Washbourn: "the bulk of students will only attend courses which are either compulsory, or which will directly assist them in passing their examinations. They fear wasting their time on subjects which do not 'pay.'"

Too much is being forced on the student; and the important distinction is neglected between [1] knowing in the sense of merely remembering what one may have been told, or may have seen more or less casually, - (such "communicated" knowledge ever remains, so to speak, *something outside one*), - and [2] knowing through having found out or verified by one's own discrimination, by the active exercise of one's own senses, by one's own effort, - (such knowledge - true knowledge, it might be termed - becomes *a permanent part of one's nature*). It is only the passive process that can be subjected to definite and multiple codification, such as now prevails. The active process, the vital process, which

alone, it is averred, has value, is impeded, or altogether inhibited, by over-regulation. True knowledge is not a question of "remembering;" it is a question of ingrained mental and moral reflex action.

"It is generally admitted that the modern student has to acquire about three times as much information as I had. It is argued that, on the other hand, the improvements in teaching have advanced *pari passu* with the amount to be learnt. But the brain of the ordinary student can only take in and assimilate a certain amount of knowledge, and I hold that the amount demanded of him to-day is too great for the knowledge to be thorough. It is broad, shallow, frothy, - not silent and deep. . . . I am looking at these sciences from the point of view of their *utility to a man* who has to earn his living by curing sick people. But from that point of view I declare them to be *worse than useless* to the student, because they are using up his mental energy, and consuming valuable time, which ought to be devoted to studies that are of use to him in the subsequent business of his life."—(MITCHELL BANKS.) (The italics are added.)

Compulsion, - impotent compulsion, resistance-inviting compulsion, - sums up the present position.

"The students wearied and weighed down, and with a sword of Damocles hanging over their head in the shape of an annual examination;" . . . "failure due, not to want of diligence or conscientious work, but simply to brain-exhaustion," writes Sir William Stokes.

"Dare not tear themselves away from the drudgery of book-work, dreading failure at the examination;" "unable to devote sufficient time to work in the wards and to self-training," writes Mr. Teale.

"The Regulations armed with a revolver in the shape of Examinations." "The student spends his time in hospital, not watching the changes in his patients, -(from an examination point of view, this does not pay, and the one thing essential is to pass), - but on the look-out for ready-made answers to questions. Violence keeps theory and practice apart," writes Mr. Tobin.

"You can go on adding subject to subject, and examination to examination, but by so doing you only drive the student into further and further cramming. . . . And owing to the eternal cramming to which he is compelled to have recourse, the student loses all power of thinking or reasoning for himself. He is reduced to a mere grinding machine. . . . You only turn out MACHINE-MADE MEN," writes Mr. Banks.

It was enthusiasm that summed up the past.

The view will be distinctly read in between the lines of this complaint, - an idyl in substance, with the wit thrown in of which Mr. Banks holds the secret:—

"In the modern student there is a lack—a great lack—of independent observation. . . . Up to the time he comes to the bedside he has been cramming and stuffing for examinations. He has been learning in a merely mechanical way, grinding, committing to memory—not thinking. And now so much is done to help him, even in his hospital work, that he is in danger of losing the habit of cultivating the power of intelligent observation. . . . The physician who lived before the days of Laennec had no means of telling what was going on in the interior of a man's chest, except by symptoms. Physical signs, as they are understood to-day, were unknown to him: pleximeters and flexible stethoscopes with double ear-pieces were in the future. But the very want of mechanical help compelled him to be an acute observer. Over a case he was like an Indian on the war-path, to whom a trodden leaf, a broken twig, the hurried movement of a frightened bird, were all pregnant with meaning. He took the most careful notice of the decubitus of his patient, of the exact character of his breathing, of the look of his face and of his eye; of the very tone of his voice. Having neither urinometer nor chemical tests, he paid the closest attention to the amount and outward appearance of the urine. See how he found out albuminuria—by the frothing of the patient's water as he passed it into a glass! To the minutest details of the condition of the pulse and tongue he was far more attentive than we are to-day. The appearance of the faeces with him claimed great consideration. I remember an old gentleman telling me of his teacher handing round the bed-pan to the students, and winding up a careful description of its contents with the remark: 'Of a rich chocolate colour, you will observe, gentlemen, and elaborately curled!' It was a grotesque sentence, but it told many things about the patient to the student who could think."—(MITCHELL BANKS.)

One would delight to quote on about poor old Laycock, "considered queer and visionary and heterodox by the 'unco guid' of his own cloth, who could not see as far as he could." But the Author would fain trust that what Mr. Banks says so affectionately of White's History of Selborne, - "You have all read it!" - will soon apply, and yet more forcibly, and in respect of a wider audience, to his own delightful retrospect, "1865 and 1895 - Student and Teacher." There are addresses that mark an epoch. This is one.

Beacon heights are few. Thirty years are an age, as time flies to-day. But there is one still with us, looked up to, beloved, the pride of our profession, who speaks to us from yet an earlier date. From the breezy summits of the playful philosophy of Mr. Banks, the deep and earnest tones of Mr. (now Sir James) Paget catch the attentive ear. It is terms of loving companionship, of the closest of affectionate ties; it is as an elder brother on the same road, in the same path, but just slightly in advance, that he leads, but not drives; persuades and warns, but neither chides nor threatens. Here teacher and pupil are one in aspirations and aims; in work, - one had almost said in play.

"Your responsibilities should be a motive to industry. It is not necessary, if even it were possible, that I should enumerate them. They are as various as the ills that flesh is heir to; they are as deep as the earnestness with which men long to be delivered from suffering or from the grasp of death. In short, gentlemen, they are so numerous and so great, that there is *but one condition* in which a man can with comfort either undertake or discharge them; and that condition is *the consciousness that he has acquired the greatest degree of fitness for the task, that his capacity and opportunities permit him to attain.* Let this be the constant and abiding incentive to hard work—the desire to have a quiet, though a keen, conscience in the practice of your profession. In order to do this you must acquire more knowledge than may at first thought seem necessary, because you must not be content to have only just enough to pass your examinations. Sufficient for this purpose you will certainly attain. You will all receive your diplomas;* indeed, if this were the only object to achieve, the responsibility would rest on us rather than on you; for it is a part, and I count it one of the smallest parts of our office, to ensure you this. . . . Your conscience must be your rule of action; and if you consult this, the question will be—not what *must* I do? but what *can* I do, to be fit for the practice of my profession? because the only fitness high principle and a strict sense of duty will admit of, implies the possession, not of a certain statute quantity of knowledge—some just-fitness for practice—but of *all the knowledge that ever a man can attain by the steady and active exercise of all his faculties.*

"Sometimes the beam of life and death is so nicely balanced, that it turns this way or that according to the more or less skill that can be cast into the scale of life; and, surely, if we could gather into thought all the issues that are involved in the life or death of any man, the anxiety of ignorance at such a time would be *intolerable.* . . . All is permitted to depend on the skill of one. . . . Consider that one yourself."

Are there many as beautiful passages in medical hortatory literature?

One short sentence must be added, which calls for the honour of capitals:—

"HE THAT HATH THE HELP OF CIRCUMSTANCES MAY BE SURE THAT, IF HE RELIES ON THEM, THEY WILL BE OF NO ADVANTAGE TO HIM, BUT A GREAT DETRIMENT; WHILE HE THAT HATH THEM NOT MAY BE SURE THAT INDUSTRY CAN EARN WITH HONOUR ALL THAT CIRCUMSTANCES CAN GIVE."†

Less than forty years separate us from the commencement of the era in medical educationalism marked by the passing of the Medical Act (1858). We have moved on

* In what contrast this stands with what we see to-day.

† "Motives to Industry in the Study of Medicine," - Paget, 1846.

fast and far. We have moved specially fast of late. The following quite recent notes (specially referring to Anatomy) will now seem almost an anachronism:—

July 10th, 1893.

It is submitted that Mr. John Marshall, one of the best and, generally speaking, ablest of leaders, made a terrible mistake in promoting the present system of numerous segmented Examinations; and that above all he made the almost fatal mistake of pressing for an Examination at the end of the first winter session.

It will be attempted to show that this Examination breaks the continuity of practical anatomical work just at the time when such work is at its best; and that it teaches, far too early, a lesson in cram, — Alas! that such lesson should be taught at all, — to the young mind, that should be intent on better things.

Work for work's sake is only possible to most men while the Examination is still in the distance. As the Examination approaches, *work for the examination* commences, that is work, which is useless in regard to the acquisition of true and lasting knowledge. Formerly there was nothing to disturb practical work in anatomy during the first year of medical studies and the first half of the second year. It is during this period that men used to dissect to their best. Then men worked *for work's sake*. Now *work for the examination* is introduced, and the above sowing time is broken up.*

Mr. Marshall's policy resolved itself in putting pressure *ad laborandum* on the student.

But pressure on the student resolves into pressure on the teacher. This was conclusively shown in 1884 by what followed the annual publication of the pass and pluck list.

"Cram," as favoured by the teacher, is his means of self-defence against any excessive pressure put upon him. His pupils must pass in fair numbers, otherwise it is he who is blamed. The teacher then protects himself by doing "work for the Examination," that is, by "cramming." The greater the pressure, and the more numerous the Examinations, the more he "crams," and the more he teaches his pupils to "cram." Do not blame him: he cannot help it.†

But there was a fallacy in Mr. Marshall's argument.

Here is the fallacy: It underlies the entirety of present arrangements:

Neither the work of the teacher, nor that of the student, can at present be adequately controlled as to *quality*. By Examinations, as at present it seems possible to conduct them, the counterfeit cannot be adequately detected: In the present so-called practical part of the Examination, the Examination on the *already*‡ dissected body, What is this? What is that? or questions to such effect, must necessarily be the

* Is there any work now that can properly be called "*work for work's sake*"? It is the examinations, writes Mr. Tobin, that now "dominate the student's views."

† Mr. Marshall's praiseworthy object was to ensure *at least* a certain minimum of work on the part of the student. The unfortunate result has been to reduce the work of all to the dead level of a once accepted minimum.

‡ Two years ago the Author worked out a plan by which fifty, sixty, or even eighty men could be tested in dissections on one "subject," no two men dissecting the same "part" at any one time. But it would be cruelty now to insist on a practical test in Anatomy, unless much were given up of the present abstract anatomical teaching.

Examiner's mode of testing the candidate: Now "spotting" is easily coached up for* In other lines also the Examiner must, for his own sake, ask, as a rule, such questions as can be answered in a few words. Range as he may, over the whole body, he cannot extend his repertory of questions indefinitely. He must soon fall into a routine, which is studied, understood, and met.

A casuistic impromptu *re* Teaching and Examining will be pardoned, in which, if rhetorical license be condoned, some truth will, it is believed, be found:—

"Learning is not, as the popular view would have it, the steady and easily supervised process which one might compare, if the coarse simile be excusable, to the charging of an accumulator from a dynamo, or to the filling of a tank from the main; nor is the examinational test the simple unerring function which, on symmetrical lines, one might illustrate by the counting of amperes and volts, or the taking of the level in the reservoir. There is by no means before us in this matter the antitype of the measured heating for a precise time and given time of an incubator or a vat till a definite stage is reached, till the process, — the hatching of the egg, or the malting of the grain, — the educational process, — may with safety be pronounced over and completed. There pertains much to both education itself, and to the passing of judgment thereon, of the uncertain individual element, present, — if metaphor may still further be indulged in, — in the taking in and paying out by a cashier of coins of copper or either precious metal, — in which instance, and *at the client's option*, quality compensates for quantity, and *vice versa*. In the Examinational prototype this all-important difference presents, that the option pertains entirely to the other side of the counter, — of the dreaded green table. The change of a three-penny-bit may be the apparently small thing asked of the examinee; but then it is readiness in small cash, — apology is offered for the simile, — that will make all the difference to him between success and discomfiture. And what about the parallel of the bright farthing unwittingly (?) given or taken for a half-sovereign? The student is therefore right in going out of his way to arm himself for the Examinational ordeal in quite different fashion from that in which he prepares for the, in many ways, less uncertain battle of life: — It cannot be doubted, to return to the plain matter-of-fact dealing with the theme, that the Examination is a *disturbing element* in the tenor of a studious life. It is, on the other hand, a reminder *unfortunately but little attended to* in the course of an idle one, — a *necessary evil* in the one case, and but a *questionable advantage* in the other."

It is on making the most of this questionable advantage that the present educational policy is based: — Examine, examine: compel them to . . . work? No, that is beyond human ken, but, alas! to . . . "cram." It is respectfully submitted that the Examination is the *last thing* either teacher or student should think of; and that it has been made the *first thing*.

July 20th, 1893.

This system of "cramming" weakens the hold on the student of even the best meaning teacher. In the signing of schedules, the teacher must settle on some fair all-round standard for granting or refusing signature. What shall this standard be? Formerly it was a question of the student having dissected more or less thoroughly. There was then something visible and tangible for all to go by. And the student anxious to get signed up would know what degree of proficiency he must reach in order to attain to his first object, — permission to go and be examined. Under any kind of "Chalk and Duster" system, or system in which dissecting is placed more or less in the background, it is he who can best *talk* about Anatomy, and best draw and explain diagrams, who carries off the palm. Only an uncertain position can then be taken up by the teacher with reference to granting or refusing signature. There being thus no clear measure of right or wrong, his decisions are bound to be by some canvassed unfavourably, and represented as such as may be modified by pressure on the part of the dissatisfied. The teacher, thus assailed on all sides, must gradually give way. *It is extraordinary on what flimsy pretexts men will now press to be signed up.*

* The view is developed in Part II. of the Tablets, p. 152 v.

IV.

CONDENSED PRÉCIS

OF A FEW POINTS NOT OTHERWISE TOUCHED UPON.

Specialism opposed to *real* progress :

Branches of useful knowledge now well to the front in regard to daily practice, for which a place is being claimed, but claimed in vain, in the curriculum and at the examination table: — Bacteriology, the administration of Anæsthetics (recent articles in *Lancet*); further instruction in Midwifery (recent discussion at General Medical Council); Hygiene, Insanity; diseases of the Skin, of the Nervous System, of Children; diagnosis by the use of the microscope and other instruments of clinical research (recent address by Mr. Jonathan Hutchinson); special branches connected with the Eye, Ear, Larynx, Uterus, Bladder, Rectum, &c., &c.

Reply of Examining Bodies :

No room can be made; curriculum already lengthened to five years, yet student as hard pressed as ever; can stand no further strain.

Student can take in no more of the kind of knowledge that can be forced upon him, driven in, "shovelled down" (M. Banks). Can retain, indeed *contain*, even up to the examination, no more by way of "merely remembering." Compulsion done her best, or her worst. Specialism at the end of her tether.

Nothing more, however pregnant with useful applications, can be "taught and examined in,"—*i.e.*, taught by one specialist called in for the purpose, and examined in by another specialist.

Why call in the specialist?

Why the specialist as a teacher, who "piles up detail upon detail, detail upon detail, till, &c."?

Why the specialist as an examiner, who, "Presto, changes his coat," &c. (M. Banks).

Why, above all, the specialist as a text-book writer, setting the pace that all must go at?

Is not the clinician, as a *teacher*, ready to give instruction in the discoveries which have "revolutionised his practice"? He is only too eager for the work.

Is not the clinician, as an *examiner*, "more likely to select practical questions which the student may be expected to answer?" . . . "As long as we specialise our examinations, and break them up into separate bits, we shall look in vain for practical teaching" (Timothy Holmes).

Practical men as Examiners, not specialists. Then :

Won't press, drive, "harass" the student. - Testimony of Mr. Arbuthnot Lane and Dr. Washbourn. But

Kindle his enthusiasm *à la* Paget. "One thing the author knows, and asserts most emphatically, on the strength of long experience . . . Interest, intense interest, in anatomy (or any other subject) taught practically, and as answering student's questioning cogitations as to how the thing works."

Work for work's sake :

True knowledge, "deep, abiding, useful" (Tobin). "A permanent part of one's nature." "A question of ingrained mental and moral reflex action."

Not work for Examinations :

"Communicated knowledge ever something outside one." "Shallow, frothy; vanished in a few months" (M. Banks).

Then :

"THERE WILL BE ROOM FOR CALM CLINICAL STUDY, FOR SELF-TRAINING, FOR LEARNING SOMETHING USEFUL DURING STUDENTSHIP, OF THE TRAINING OF THE TRUE DOCTOR. . . . COULD BRODIE, OR GREEN, OR LAURENCE, OR GRAVES, OR STOKES LOOK DOWN, . . . THEY WOULD BE AMAZED TO SEE HOW FAR WE HAVE DEPARTED FROM THEIR IDEALS OF THE TRAINING OF A MEDICAL MAN" (Pridgin Teale).

Will the reader kindly consider what the present system comes to in regard to the newer subjects above mentioned as now being pressed to the front: Teach bacteriology, examine in bacteriology; teach insanity, examine in insanity; teach anæsthetics, examine in anæsthetics; and so forth. Is it not plain that the knowledge contemplated must be of the kind referred to under the designation "driven in, or communicated," - the special work the "crammer" deals with, by which examinations are passed without any adequate knowledge of the subject examined in? Mr. Hutchinson has an extremely correct definition of "cramming," which exactly sustains the view contended for: "By 'cramming,' as distinguished from the honest acquisition of durable knowledge, we mean the hurried obtaining of crude and, for the most part, merely verbal information, with a view to its immediate use at the examination, and with little or no thought of any other object" (Jonathan Hutchinson). Nothing can be better put. Piecemeal teaching almost necessarily prohibits honest practical work. "Teaching," on the one hand, and "the diploma examination" on the other, should be, as Mr. Timothy Holmes well says, "*a unity*." To maintain such unity, both teaching and examining should be in the hands of men above any suspicion of specialism, of men of comprehensive views, exercising wide discretionary powers, and not hampered in any way. These characteristics

pertained to the Examining Boards of some years ago; but they have since been lost, at least in regard to the *earlier subjects*, in consequence of the subdivision of the work induced by specialism.

WORD-KNOWLEDGE; NOT TRUE KNOWLEDGE (PROF. STRUTHERS; THE LANCET).

Writes, "near the end of a long life spent in medical education and in endeavouring to improve it," Prof. Struthers, President of the Royal College of Surgeons of Edinburgh, the Father of Anatomy, as he is popularly called in the North:—

"It is a deplorable thing that about one-third of the candidates should be rejected.* One feels quite sorry for them. *Half the pains they have taken, if taken in the right way, would probably have enabled them to get through.*"

"The uncertainty attending the examinations has itself a disturbing effect: it leads students to have recourse to the grinder, instead of to fair steady work."

"Word-knowledge, not real knowledge, is at a premium. The student works for the examinations, in dread of them, rather than to know his work. He grinds and crams."

"*The influence on the legitimate teacher is injurious. He has to bend to it, and becomes a lecture-room grinder.*"

"Although the dissection may be on the table, or even in the hand, the teaching is too often of the kind that fills the memory with *verbal knowledge*,—*a stream of information poured on the memory*,—while the opportunity is lost of directing the eye and thought. That has struck me—shocked, shall I say?"

"It has been said that, besides its intrinsic importance, the value of anatomy is that it trains the memory. That is exactly what I deprecate. I deprecate all verbal knowledge,—whether obtained from books or from lectures."

"*We must go to Nature.* I would ask you to think of the bearing of the great truth that, as in the words of Gibbon, 'Every person has *two educations*,—*one which he receives from others, and one, more important, which he gives himself.*' No kind of reading is more interesting, none more likely to inspire and encourage, than that of the lives of self-taught men. I do not mean the lives of men who have what is called got on in the world, but of men who have relied upon themselves, and have left their footprints on the sands of time. In our profession you may take, as examples, the lives of Harvey, John Hunter, or Edward Jenner; and here in Edinburgh those of Cullen or Charles Bell. . . ."

" . . . Many apples had fallen to the ground before the one that led Newton to ask himself, Why? Anatomists knew that the spinal nerve arises by two roots, and had year

* *Rejections now amount to a good deal more than a third.* In the return just presented to the Royal College of Surgeons of England (Nov., 1896), the average of rejections at the second examinations is set down at 42·7 per cent. for the candidates going up in anatomy and physiology, and at 56·3 per cent. for those going up in anatomy only.

Mr. Pridgin Teale's table of the rise of rejections, taken every fifth year, is as follows:—

1861	...	...	...	...	...	...	12·4	per cent.
1866	...	...	...	...	...	...	14·5	"
1871	...	...	...	...	...	...	16·6	"
1876	...	...	...	...	...	...	22·2	"
1881	...	...	...	...	...	...	30·0	"
1886	...	...	...	...	...	...	34·8	"
1891	...	...	...	...	...	...	39·3	"
1895	...	...	...	...	...	...	41·9	"

"*The need for Reform of the Medical Examination System*—(Pridgin Teale, F.R.S., Crown Member of the General Medical Council.)

after year repeated the fact to their students, but Charles Bell asked himself, Why? and worked on; and Nature answered him in the greatest revelation in physiology made since the time of Harvey. Everybody knew that species resemble each other, but Darwin asked himself the great question, Why? and the answer has been such as to have changed the point of view towards almost everything physical and metaphysical."

"These men went to Nature."

"The training of the student to observe and to think is by no means so easy a thing as may be supposed. It is the teacher of anatomy who is struck with that. Set the beginner down to a bone with his book, or let him hear a lecture of the usual kind. Examine him; and you will find that he has not really seen anything. He has followed his previous habit at school, and has learnt his lesson; and is ready to repeat what he has read or heard. He has yet to be taught to look and see. . . . He will give off the number of vertebrae in each region of the vertebral column, but he is pulled up at the question, How do you know it? and replies that he has heard it, or that his book says so. To the question, Have you counted them? he replies, No, with a look of surprise. He has a sacrum before him, and you ask him whether its length or its breadth is the greatest. He had not thought of that, but readily says its length. You put a rule in his hand, and ask him to measure. He finds that his eye has misled him, and he learns the value of measurement. . . . At first, fresh from his school method, he seems to think this is waste of time, but soon he has discovered a new power within him, and delights to exercise it. *I should like to impress upon teachers of anatomy the responsibility that rests with them of giving the student the right start in method.*"

Wrote the *Lancet*—leading article for January 20th, 1894:—

"We believe that almost every teacher of practical anatomy in England will agree with our statement that the quantity and the quality of the dissections now made by the students in our medical schools are distinctly inferior to those to which teachers and examiners were accustomed some few years ago. A system of chalks, blackboards, and tutorial cramming classes has largely supplanted the older and better method of teaching. This deplorable deterioration so far as real dissecting-room work is concerned"

"The second factor which has done so much harm to practical work is the great advance lately made in morphological anatomy; for speculation and hypothesis will always be more attractive to the beginner than the drudgery of sheer hard work. The applied or descriptive anatomy of the human body has correspondingly lost interest with students. Human anatomy, which ought to be known by every practitioner in the medical art, is quietly but surely being relegated by our best students and by many examiners to a subsidiary place in medical studies. Many of our most intelligent medical pupils can adequately discuss the homologies of the transverse processes of the vertebrae while they do not know the position of the tendons around the wrist or ankle-joint, or the relations of the aortic arch. We may be training a race of more or less scientific anatomists, but we are not insisting on such a curriculum of study and such examinations as will produce in the future well-grounded, thoroughly practical, and efficient medical men."

"Dissections of the deeper regions are seldom made by the student now, and he learns his text-book statements by a process of cramming to which diagrams and carefully prepared museum specimens always lend themselves as efficient aids. He was formerly taught to know, and then to use his knowledge; but now he is encouraged to learn only for the purpose of reproducing his information at the next examination. As MR. THOMAS COOKE truly says: 'If there is one point of all others which it is imperative to insist upon as to the kind of anatomy required by the medical man, it is emphatically that it should be a practical and particularised as opposed to an abstract and generalised kind of knowledge. The one question with the medical man is to know, in the most matter-of-fact sense of the term, what is evident and tangible in one single species—man himself.'"

"It is growing in evidence year by year that anatomical teaching is becoming less and less concerned with the dissection of the human cadaver, and that the student is led more and more to learn, parrot-like, the statements and descriptions in his text-books. Human anatomy must be studied from a human standpoint, for medical students are intended to

be medical practitioners; and the morphological interests may be referred to those scientific anatomists who concern themselves with other vertebrates, and who in the course of their lectures apparently treat of an ideal evolutionised human being of their own construction. Such anatomists have no experience of the requirements of those who are destined for medical practice."

Wrote again the *Lancet* quite recently—leading article for February 6th, 1897:—

"We have again and again raised a protest against the present system of teaching and examining as being responsible for the decline in the amount of time given by the medical student of late years to the practical work of his professional curriculum. The period of study has been lengthened, but we see no evidence of an increased attention to those practical subjects which form the bed-rock on which his subsequent daily work must be founded. Scientific subjects are allowed to increase, and to encroach more and more on the time which should be spent in the dissecting room, the laboratories, and the wards and out-patient rooms. Every anatomical teacher who is familiar with the daily work of the profession, deplors the decadance in practical anatomy which is now so marked. We do not hesitate to say that the number of medical students who now thoroughly dissect the human body, so as to see the structures clearly, is much less than it was 15 or 20 years ago, and is gradually dwindling to a minimum. Yet it is from these that the future surgeons must come. . . . As the examiners are specialised in their own branches of science, or in some subdivision of them, so must the student be crammed with innumerable details to the great detriment of his reasoning faculties. We are glad to see practical teachers like MR. MITCHELL BANKS, MR. PRIDGIN TEALE, DR. STRUTHERS, and others, with us in this protest. And MR. THOMAS COOKE has done good service in bringing this subject prominently before the profession in his pamphlet on 'Specialism in Medical Teaching and Examining.' The subject is one that requires very thoughtful consideration with a view to reform."

Writes in his Introductory Address to the Session 1896-97, R. G. Patteson, F.R.C.S., Surgeon to Meath Hospital:—

"There must be something radically wrong in the teaching of anatomy which makes the large majority of students loathe and shirk the tedium of dissecting. Anatomy is not taught as the handmaid of Surgery, but as a separate science bristling with technicalities and overloaded with trivial and exasperating details. Hence it is unwillingly learnt, and readily forgotten. And the vast majority of facts, which are all-important in surgery, are soon engulfed in the wreckage which follows the emancipation of an overburdened memory when the examination is passed."

LOOKING BACKWARDS: THE FIFTIES, THE SEVENTIES, THE NINETIES.

The Fifties are the period of the pre-Medical-Act agitation, which followed the educational repose consequent on the passing of the Anatomy Act.

The literature of both these periods is most fascinating.

The

"By Jove! He died a nathral death!!

By Jove! He was murdered!!"

of the stuttering Dr. Mayo at the inquest on the Italian boy at King's College (1831), supported by the evidence of

Sir Benjamin Brodie :

"There can be no knowledge of surgery, and very little knowledge of medicine, without anatomy; nor can anatomy be sufficiently learnt in any other way than by dissecting."

John Abernethy, Esq. :

"Dissection is the foundation of all medical knowledge."

Sir Astley Cooper :

"The surgeon must mangle the living, if he does not operate on the dead."

Westminster Review :

"Ignorant physicians and surgeons are the most deadly enemies of the community; their ravages are constant, silent, secret; and it is when they are looked up to with the confidence of hope, that they give speed to the progress of the disease and certainty to the stroke of death."

"They are conscious that the operation (for strangulated hernia) is of immense importance; they know that in the hands of an operator ignorant of anatomy it is of extreme hazard; they put it off as long as possible; they have recourse to every expedient; they resort to everything but the one efficient remedy; and when at last they are compelled to try that, it is too late!"

had given us a supply of "subjects."

Wrote the *Lancet* in the half-way period (the Seventies), or practically so (June 19, 1869) :

"In the opinion of many, professional education is actually less efficient now than before the General Medical Council existed;"

and a month later (July 24) :

"It is fact that men whose medical education, for practical purposes, is little else than a farce, enter the profession; the thing must stop;"

the increased boldness coinciding with the speeches in Parliament of Sir John Gray and Mr. Chichester Fortescue, Chief Secretary for Ireland, afterwards Lord Carlingford.

Said Sir John Gray :

"Government had grievously neglected their duty to the community in not securing a sufficient test of the fitness of a candidate for medical or surgical degrees. Neither the course of study nor the mode of examination were sufficient to secure practical knowledge. He regretted to say that the General Medical Council had not fulfilled their duties. The candidates' knowledge of disease was as much a sham and a delusion as the day the Council was first formed. When a man was sick, he did not want a man who could give him a lecture; he wanted a man to whom the features of disease were so familiar that he could not fail to recognise them, and who would be prompt to combat the symptoms and beat them back. . . . At a meeting of the Medical Teachers' Association, presided over by Sir William Jenner, the inefficiency of the present system was dealt upon. No doubt the examinations were severe, and many men were rejected; but, chiefly as to their knowledge of the accessory sciences. Students were now taught to answer questions like parrots. A good grinder would post a man

up in all the necessary knowledge in six months. These were not the examinations in a man's knowledge of disease." (Hansard's Reports.)

Continued the *Lancet*:

"The general and medical Press of the country is unanimous in blaming the Council for the defects which still exist in medical education, and which are complained of in Parliament. These complaints are a scandal to the profession. After Sir John Gray's statement in Parliament—a Cabinet Minister said, 'What a dangerous thing it must be to call in a doctor!'"

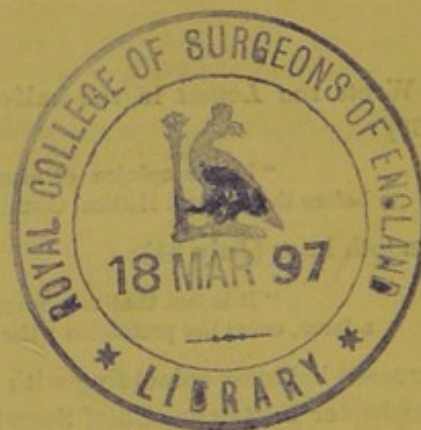
"We believe that there never were a greater number of well-educated and intelligent medical men than there are to-day; still it is fact that men whose medical education, for practical purposes, is little else than a farce," &c.

But Parliament and the *Lancet* were out by a year

In June, 1868, the General Medical Council had got resolutely into harness in regard to Medical Education:—

"Resolved—'That a Committee be appointed to consider and report how the various subjects of the Medical Education may be taught with most advantage; in what order they should be studied; and how the examinations in them ought to be arranged;'"

and by July 10, 1869, they had issued perhaps the grandest Report on Medical Education that has ever seen the light of day, upon which, as says Sir Richard Quain, all subsequent legislation has been based.*



* The Report embodied the replies, on almost every subject of the Medical Education, of a hundred and thirty of the leading teachers, among whom were Mr. John Attfield, Sir Benjamin Brodie, George Viner Ellis, Dr. Lionel Beale, Dr. Cleland, Mr. Luther Holden, Sir George Humphry, Dr. Redfern, Dr. Rolleston, Dr. Struthers, Sir William Turner, Dr. Anstie, Sir William Garrod, Dr. Sieveking, Dr. Sidney Ringer, Dr. Aitken, Dr. Wilson Fox, Sir William Gull, Sir Thomas Watson, Dr. Wilks, Mr. Christopher Heath, Sir John Erichsen, Sir William Fergusson, Sir Joseph Lister, Mr. John Marshall, Mr. Campbell De Morgan, Sir James Paget, Sir William Savory, Mr. Pridgin Teale, Sir G. Prescott Hewett, Mr. Berkeley Hill, Mr. Simon, Mr. James Spence, Dr. Heron Watson, Dr. Joseph Bell, Dr. Matthews Duncan, Dr. Graily Hewitt, Dr Robert Barnes, &c. &c.