Introduction to a course of lectures on the diseases and operative surgery of the eye / [William Mackenzie].

To Mr Brodie,
with Mr Mac Kenzie's Compts

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INTRODUCTION

TO

A COURSE OF LECTURES

ON THE

DISEASES AND OPERATIVE SURGERY

OF

THE EYE.

5th October, 1818.

BY

WILLIAM MAC KENZIE,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS.

"Ego eumdem quidem hominem posse omnia ista præstare concipio: at ubi ill se diviserunt, eum laudo qui quàm plurimum percepit."

"Sed hæc quidem mediocria sunt: ingentibus verò et variis casibus oculi nostri patent; qui quùm magnam partem ad vitæ simul et usum et dulcedinem conferant, summâ curâ tuendi sunt."

Celsus.

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TO

MY PUPILS,

IN TESTIMONY

OF

SINCERE AND GRATEFUL

REGARD.

INTRODUCTION,

&c. &c.

WHATEVER other kinds of knowledge, or whatever other advantages a surgeon ought to possess, the following are indispensable. He who would perform any surgical operation, ought to have an accurate knowledge of the structure of the organ or region of the body, upon which he is to operate. He ought, in the second place, to be in possession of a set of rules, to guide him through the execution of the operation. And thirdly, he ought to have frequently repeated, upon the dead subject, the operation which he is about to attempt upon the living and sensible body of his fellow-creature.

I. It is not sufficient for him who is to become an operating surgeon, to have heard the bones, muscles, blood-vessels, and nerves successively described by another person; nor is it enough that he be able to recall to mind, with tolerable distinctness, the descriptive anatomy of these several systems of the body, as it was delivered to him in the Schools. His

knowledge of anatomy must be the result of repeated examination with his own hands; and must be so exact and perfect, that every part of the body may appear to his mind's eye as if it lay dissected before him. There are, it is true, a set of despicable men, who declaim against what they term in contempt, minute anatomy; saying, that it is a kind of knowledge foreign to a surgeon's skill. The true reason of their enmity against minute anatomy, is their thorough ignorance of anatomy of every sort. No discovery concerning the structure of the body is without its use; and it requires only a greater degree of patience in making the application of what is known concerning the arrangement of the minute parts, very much to improve some of the most important operations of surgery.

It is necessary for the surgeon, above all, to be acquainted with the relative positions and proportions of the several parts, in every organ or region of the body which may become the subject of a surgical operation. There is no disease, accident, or operation, which affects one system only of organized parts. The greater number affect many systems at the same moment; and he only, who knows how far each participates in the disease, accident, or operation, forms a just and complete idea of the

case before him. In amputation at the shoulder-joint, for instance, there is scarcely a system which is not interested. We divide skin, cellular substance, aponeuroses, muscles, tendons, arteries, veins, lymphatics, nerves, ligaments, and synovial membranes. If we perform this operation as it ought to be done, we divide these parts with great caution, with great art, and with a constant reference to their relative positions. Even in operations, in which it is our object to produce an effect upon a part of one of the systems of the body only,—for instance, in the operation for aneurism, in which we mean to act particularly upon a portion of the arterial system,—how many portions of the other systems have we not to divide, and how many which lie in the way have we not carefully to leave untouched!

There is, in fact, a distinct species of anatomical science, to which may be given the name of Relative Anatomy. Not that this kind of anatomy is new. Mr. John Bell, Dr. Colles of Dublin, Mr. Allan Burns, and, long before their time, Ambrose Paré wrote upon this subject under the name of Surgical Anatomy; a name which is faulty, as this kind of anatomical knowledge is absolutely necessary in the explanation of diseases which do not belong to the province of surgery. A man

feels pain within a limited space of his body, for instance within one of the splanchnic cavities, but without any prominent external marks of disease: how is the physician to determine the seat of the complaint, unless he understand the relative anatomy of the region affected? Without such knowledge, he will fix at a venture upon some one part as being a possible seat of the disorder, and his mode of treatment will be experimental or blindly empirical.

The manner in which relative anatomy should be studied is easily understood. It is analogous to the manner in which a knowledge of this kind of anatomy is to be applied in practice. A particular part of the body is affected with disease; it is even doomed to be the subject of a surgical operation: in such a case, how is it that the practitioner applies the anatomical knowledge which he possesses, in order to form an accurate diagnosis, or to accomplish a successful operation? He does not content himself with enumerating the names of all the parts, but he endeavours to bring to his recollection accurate notions of the extent of each, of its position in relation to the rest, and of its connexions. Even he who is but very superficially acquainted with relative anatomy, follows, as far as he can, the same method of investigating a

local disease, which the relative anatomist adopts in treating of that science; that is, he commences with the integuments,—he asks himself what is seated immediately beneath them,—he reasons on the probability of that part being sound or diseased in the case before him,—he passes to a part still deeper,—he investigates by layers the whole fabric of the region affected, proceeding from the integuments inwards to the very centre of the bones; and if he be about to perform an operation, he goes over, in his mind, layer after layer, the parts which he is to divide, and calculates what of each system he is to displace or to remove, and what he is to spare.

I know no operations which demand for their proper execution a more precise knowledge of the relative anatomy of the parts to be operated upon, than those which are to be the subject of this Course of Lectures.

The variety of parts which compose and immediately surround the Eye, is so great, most of these parts are so minute and so delicate, they are so admirably arranged into a perfect organ, that the eye has been regarded as a little world of organization, and has even received from some fantastic spirit the name of Microcosm. Not only does it exhibit an assemblage of all the systems which compose the body; it presents a great number of distinct organs or particular ma-

chines, arranged so as to form one instrument; and so important and so small are these individual organs, that the least mistake in regard to their relative position may prove fatal to the success of our operations, and even lead to an irrecoverable loss of sight.

The iris, for instance, is a distinct organ, provided with its own sources of nutrition and of nervous energy, and possessing a well-marked and peculiar function. The whole of that function indeed is not understood. Of one fact, however, with respect to it, I am persuaded, as well by the experiments made upon this subject in Italy, as from certain morbid phenomena, to which I shall have occasion afterwards to refer, namely, that the natural state of the iris is expansion, or, in other words, that during sleep the pupil is completely or very nearly closed*.

Who would pretend to operate upon the eye, without knowing the relative anatomy of the iris? Who would venture even to pass a couching-needle into the posterior chamber, or to pass a similar instrument, or any other sort of instrument, through the cornea, and thence through the pupil; much less attempt to detach, or to cut through, or to cut away a portion of the iris,

* Fontana—Dei Moti dell' Iride. Lucca, 1765. Janin—Mémoires sur l'Œil. Lyon, 1772. page 8. Cuvier—Leçons d'Anatomie Comparée. Tome II. Paris, 1805. page 409.

unless he had examined all the relations and connexions of that membrane? Who would pretend to perform any operation in which instruments were to be introduced into either chamber of the eye, who did not know the kind and degree of connexion between the iris and the ciliary processes, and was acquainted with the exact distance between the internal surface of the cornea and the iris on the one side, and between the anterior portion of the capsule of the lens and the iris on the other? From the rude state of invention in the hands of Cheselden, down to Reisinger's method, which I have no hesitation to say is an operation at least as precise as the operation of extraction, every step of improvement in the formation of an artificial pupil may be traced to an advancing knowledge of the relative anatomy of the eye.

For his ignorance on this very point, the greatest degree of ridicule has been heaped upon one of the most distinguished eye-operators in France; and not only upon him, but indirectly upon the National Institute, for their approval of what he laid before them upon the subject of an artificial pupil. This operator stated, that the pupil, which he had made by removing a small portion of the iris near its ciliary edge, had already continued for more than three years, and that there was no appearance in the eye

which could lead him to fear that it would close. The rays of light, he said, entered the vitreous humour, without traversing the crystalline lens, which he believed to be opake. In fact, he believed that there was a space between the circumference of the lens and the circular edge formed by the terminations of the ciliary processes, through which the patient enjoyed vision*.

Had this operator, instead of composing a Memoir for the French Institute, sat down, and performed a very simple dissection of the eye, he might have saved himself all the contempt which has been thrown upon him by a certain caustic critic of the German school†, and have corrected very materially his erroneous notions of the relative anatomy of that organ which he has taken under his peculiar protection. Had he cautiously turned back the cornea and sclerotica in four flaps, taken hold of the iris with a pair of forceps, and, without injuring the crystalline capsule, detached the iris half-way round from the ciliary circle, and then left the eye for a few minutes in alcohol, that the lens might become opake; he would have

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* Extrait du Journal de Médecine lu à l'Institut National, le 26 Prairial, An 8.

† Beer—Ansicht der staphylomatoesen Metamorphosen des Auges. Wien, 1805. Seite 136.

seen that the circumference of the lens reached exactly to the circular edge formed by the termination of the ciliary processes; that, of course, no light could enter the eye of his patient in the manner which he had supposed; but that he had been deceiving himself, and preparing to deceive the French Institute, which in the end he did, with a fable trumped up through his ignorance, to explain what had staggered his judgment and surpassed his knowledge of the relative anatomy of the iris.

I cannot more forcibly argue for the necessity of knowing minutely the relative anatomy of the eye, than by urging upon your consideration, that many of the most delicate parts of that organ have distinct and important functions assigned to them; that by unwittingly injuring those parts, when you ought to have avoided them, you may deprive them of the power of executing their functions; and that, in other cases, by operations sufficiently simple, but exceedingly nice, you may restore to them that power, which they may have lost by accident or disease. In all other surgical operations, there is something to come and go upon. In the extirpation of a cancerous mamma, it matters little whether an arterial twig more be divided, or a twig less. The needle is at hand, and they can be secured. In an amputation, the question

frequently is, Shall we save an inch or two more of this limb? But a single hair-breadth, in operating upon the eye, may let in upon your patient the light of heaven, and all the rich scenery of nature; or leave him to grope on for ever in hopeless darkness.

Besides a knowledge of descriptive and relative anatomy, it is proper that the operating surgeon should be acquainted with that branch of anatomical science, which has for its object the investigation of the changes of structure, which arise in the body from morbid actions. There are certain states of the eye, for instance, in which it is even extremely dangerous to perform any operation upon that organ. To know these states, and to appreciate with truth the danger of operating when they are present, it is necessary not only to examine the appearances and watch the progress of the diseases which occasion such alterations in the eye, but also to examine, after death, in what changes of structure they actually consist.

There is a morbid state of this kind, which, though I have frequently seen it in our hospitals, I have never found described in any English work. It is well known in Germany under the names of *Varicositas Oculi* and *Cirsophthalmia*, and consists, as I had repeated opportunities of convincing myself by examining the collection

of pathological preparations of the eye in the Clinical School of Vienna, in a varicose state of the veins of the choroid coat. I shall probably take a future opportunity of entering at large into the consideration of this disease. I may mention at present, that if a varicose eye be treated with stimulants, and especially with such applications as are violently irritating, the varicose growth of the blood-vessels in the interior of the eye goes on more and more, the sclerotic coat yields for a while, but at last its extenuation from distention is too slow, the varices give way, an extravasation takes place into the cavities of the eye, and the eye-ball itself bursts under agonizing pain and with an alarming hæmorrhagy.

If the operation for staphyloma be performed upon an eye affected with varicosity, some hours after the operation the veins, deprived of the support of the aqueous humour and of the cornea, burst; a quantity of blood gathers between the choroid coat and the sclerotic; the internal furface of the choroid coat, which was formerly concave, is pushed more and more towards the centre of the eye, and pressing against the retina produces dreadful pain; the upper eye-lid becomes much swoln and of a purple colour; and a violent hæmorrhagy flows from the wound left by the operation.

At last, the choroid coat and the retina are protruded from the eye; and in some individuals convulsions are induced, and syncope. The eye-ball is lost; the object of the operation is lost; the sclerotica shrinks together into a little whitish-red lump upon which no artificial eye can be placed; the eye-lids remain for ever concave and shut; the patient covers them from view; and after all that he has suffered he may well rue the day, when he met with a surgeon who imagined, forsooth, that all necessary knowledge of the diseases of the eye might be learned in some odd fortnight of his studies. Symptoms scarcely less alarming, and a result scarcely less deplorable, are the consequences of attempting the extraction of the cataract from a varicose eye*.

II. An art consists in certain manipulations executed according to certain rules.

Many of the common arts are extremely difficult to acquire: yet all of them are founded upon the laws of the phenomena of inanimate matter. Surgery, on the other hand, whilst its operations are partly founded upon these laws, and are attended by the same kind

* The best account which I have met with of varicosity of the eye, is in Professor Beer's work, entitled Lehre von den Augenkrankheiten, als Leitfaden, u. s. w. Zweyter Band. Wien, 1817. Seite 247.

6 difficulties as those of the common arts, presents a new set of difficulties, the nature and the amount of which are scarcely at all appreciable by any other than the surgeon himself. These new difficulties arise from this, that surgery is founded on a knowledge of the laws which regulate the phenomena of organized or living bodies, as well as of those which regulate the phenomena of inanimate matter. How easy would it be to cut down upon an artery, were not caution forced upon us by the fact, that if we cut across a muscle, we leave our patient lame for life? How easy would it be to amputate a limb, were nothing to be dreaded from the tide of living blood?

Surgery, like every other art, is a system of rules; and so marvellously are these rules found to facilitate the performance of the operations in which surgery consists, that if a man call himself a surgeon without having such an intimate knowledge of them that they may be said to lie at his fingers' ends, he either is infatuated or is deliberately practising a fraud upon the world. This must never be left out of view, that as the rules of surgery are much more complex than the rules of any other art, it is necessary to take peculiar pains, first of all, that the principles upon which they are founded be clearly understood, and then that they be

completely familiarized not to the mind only; but, if I may say so, even to the hands of him who is to undertake the performance of surgical operations.

Yet surgery is studied more as if it were a system of speculation, than as an art. Many students of surgery seem to act as if they supposed success in surgery, like success in poetry, to depend upon some happy inspiration; and almost turn with disdain from the professed object of their pursuits, when it is brought forward to them as a system of practical rules. Nay, it is to be feared that too many go forth from study to practice, with not only imperfect but very incorrect ideas concerning the rules of their art; though they may triumphantly bear along with them every flower of theory with which surgery has been adorned.

Did not surgeons frequently neglect to put themselves in possession of a set of rules, by which they might be guided through the execution of their operations, how could it happen that we see so many who operate almost without method? How could it happen that we see so many who seem to have scarcely any other idea than that of the end of the operation which they are attempting, so very ignorant are they of the means by which it is to be accomplished? Have we not seen one attempting

to lay hold of the stone with the forceps, before he had opened the bladder? Have we not seen others, in their essays to perform the operation for aneurism, take up a nerve for the artery, or tie in artery, vein, and nerve together? I could produce abundant instances of the same kind from the operations which are performed upon the eye. Have we not seen some operators, who bearing in mind, it is true, the end of the operation of extraction, but having no clear notions of its different steps, and of the rules by which each manipulation of each step is to be executed, have pushed their knife between the laminæ of the cornea, in despite of the very first rule of the operation; or who, applying pressure to the eye-ball before they had opened the capsule of the lens, have forced the hyaloid membrane to give way: thus occasioning, in the one instance, a cicatrice unsightly and prejudicial to vision; and in the second, leaving the patient blind from the loss of the vitreous humour?

You are perhaps inclined to reply to all this, that the mistakes and misfortunes of operators arise as much from their ignorance of the principles upon which surgery is founded, namely of anatomy and physiology, as from their being unacquainted with the mere rules of the art; or, that though the operators, whose faults I

seem so anxious to expose, may completely understand these rules, they are unable, on account of certain constitutional or accidental causes which unfit a man for operating, to put them into execution. I grant you that such errors as I have quoted, may arise from ignorance of the principles of surgery, or from constitutional or accidental unfitness for operating; but if I mistake not, they occur much more frequently from men's having almost entirely confined themselves to the speculative disquisitions which abound in surgery, and which, while they amuse so much and fatigue so little, seem to many minds to carry with them a dignity and an allurement, which they would in vain seek for in an orderly and attentive demonstration of the mechanical parts of our art.

Compare him who has embodied his knowledge into a set of precise rules for the execution of each particular operation, and him who operates with scarcely any other idea in his mind than that he is to produce a certain effect upon the body with a certain instrument. The operation of the latter is all indecision and disorder. The former performs every step with regularity and certainty; and although he really operates deliberately, every thing seems finished with a degree of quickness, which,

though the other may affect, he never can attain. Those who do the most dazzling miracles of surgery, are those who know its rules the best; and their operations seem accomplished with the greatest ease, only because they are executed with consummate art.

I wish my meaning not to be misunderstood. I am far from wishing to see surgeons reduced to mere workmen, who execute something according to rules which they cannot trace to their principles. It is to entertain a very unjust idea of surgery, to reduce it to the art of operating. It is necessary for a surgeon who would practise his art with advantage, to have extensive knowledge of all the branches of medicine. There is perhaps a possibility that a man of genius, furnished with a competent knowledge of anatomy and physiology, might invent for himself, upon the spur of the occasion, a method of operating tolerably perfect. But I appeal to the history of surgery for proofs of the fact, that the rules which we at present possess, for the different operations, have been the slowly-ripened fruits of long and patient experience; and I would urge, upon this account, that they merit a closer attention than is in general bestowed upon them. Can you imagine, that by a few short fits of application

you can acquire the rules of surgery, which have cost so much labour and arisen so gradually? One man has added a new rule; another has varied a rule which had been received before; and thus it has been only by perpetuating his efforts, that the chain of man's knowledge in operative surgery has been prolonged through the extent of so many ages.

I urge that we ought not to flatter ourselves with a hope, which though so absurd that we dare scarcely avow it even to ourselves, yet is too frequently suffered to delude, namely, that operations may be learned by practice. There is a manual address in the performance of operations which practice only can give; but practice in the mean time must itself be under the guidance of a clear and well-understood system of rules: and he who would neglect to acquire an intimate acquaintance with such a system of rules, would resemble the maker of some very difficult piece of mechanism, who, despising to look at the machines of the same kind which the genius and industry of preceding ages had constructed, should sit down to invent over again what had been already known, and to waste his time in clumsy and unsuccessful attempts to reach an object, which any ordinary workman of the same class

could accomplish in a few hours, by following the generally received maxims of his handicraft.

There are few operations in surgery which appear more simple, upon a superficial view, than depression of the cataract. It consists merely in passing a needle into the posterior chamber, and pressing the opake lens downwards till it be removed from the axis of vision. Yet I know few operations, the rules of which are more numerous or more important. The manner and situation of passing the needle through the sclerotica, so as to avoid the long ciliary vessels and nerve, the ciliary processes, and the retina; the direction of the point of the instrument at the first puncture, and afterwards till it appear behind the pupil; the application of the needle to the lens; the degree to which the lens is to be depressed, that it may bruise neither the ciliary processes nor the retina; the manner of withdrawing the instrument from the eye; these are only some of the points upon which exact rules have been laid down by men of eminent genius, who have devoted their lives to the study of the anatomy and surgery of the eye. You may have seen depression attempted by surgeons, who would have ridiculed any nice regulations for the performance of an operation which seems at first sight so simple;

and perhaps you have seen likewise the termination of their awkward and unjustifiable experiments.

Few aspire to reach, in the surgery of the eye, the rank of the late Mr. Ware. We speak of him with the respect due to one, who long maintained in the public opinion the value of this particular branch of our profession, by his learning, his practical knowledge, and his expertness as an operator. In his work upon Cataract, he has laid down a set of rules for the conduct of that operation, drawn partly from Wenzel and partly from his own experience, to which he has given the title of "Mementos for the Operator in extracting the Cataract." He informs us, that for many years he had made it a rule to peruse these mementos on the morning of every day in which he was engaged to perform the operation. So much persuaded was this experienced operator of the necessity of bearing constantly in mind the rules of our art.

III. The third thing which I stated to be necessary for the operating surgeon was, that he should have frequently repeated upon the dead subject the operation which he might be about to perform upon the living.

We have seen that the rules of operative surgery arise from two very different sources,

namely, from the phenomena of inanimate matter, and from those of organized and living bodies; and that the peculiar difficulties of surgery as an art originate entirely in the latter of these sources. It must be evident that it would be a very great advantage in acquiring a knowledge of operative surgery, if these peculiar difficulties could be set aside for a time, and a certain practice and dexterity acquired, without having the dangers and the complication of obstacles to encounter, which meet us when this art is exercised upon sensible and moving matter. This great advantage is gained by repeating the operations of surgery on the dead subject; though it must be confessed, that the opportunities of doing so are but rarely seized with an avidity proportionate to their value.

Suppose for a moment that surgery were practised upon dead matter alone, that it were an art which had nothing repugnant about it, and that every man of good understanding could judge of the manner in which it was studied and of the degree of skill with which its operations were executed; do you think that the preparatory exercises upon the dead subject which are usually gone through, would be reckoned any thing like sufficient to enable a man to practise surgery with even moderate success? Suppose

that surgery were an art like painting, sculpture, or architecture; were surgeons as anxious to succeed in their art as we in general see painters, sculptors, and architects, eager to shine in theirs, what labours would the student of surgery then undergo, that he might emulate in his exercises the innumerable and most delicate touches of the pencil of the painter, or of the chisel of the sculptor, or vie with the studies of the architect, who measures every column, and models every capital in ancient Rome! Which of the two ought to prepare himself the more diligently—the surgeon, in whose hands are life and death, or he whose art consists in the repetition of certain operations on canvas or stone?

To pursue this kind of comparison a little farther, what sort of picture could we expect from him whose whole knowledge of painting was derived from hearing some courses of academical lectures upon the art, or from looking at some of the master-pieces which are displayed in the public galleries, but who now for the first time took the pencil into his own hand? Rude and almost formless as the picture produced by this person must be, it would stand on a level with the operations of that surgeon who has not for a while turned his back upon the world, to associate with the dead, and to repeat

again and again every operation which he ever means to perform upon the living.

A time was, when anatomy was studied upon the living bodies of malefactors. Happily this practice is no longer in use; but, if I mistake not, an analogous method of studying operative surgery is not unfrequently had recourse to. I have heard some, who pretended to aspire to the rank of cultivators of the healing art, excuse themselves for neglecting the manual exercises, scanty though they be, which are performed in our schools of surgery, by this very modest and humane argument, that they had the prospect of being placed in situations, where they would have enough of cutting upon the living subject. Operative surgery was at first the daughter of a bold, courageous, generous philosophy. This monster is the offspring of cruelty begot on avarice.

You shudder to think of the example of Herophilus and Erasistratus, and of the advice of the profane Diderot! Is it less cruel to flatter a sick man on to courage, and then to take up the instrument of operation with the hand which never took it up before by the side of the dead subject? What is it, in the midst of his operations, which so suddenly appals the surgeon's resolution, but the rising up of this terrible thought before his mind, that by

frequently repeated exercises upon the dead body, now no more in his power, he might have saved himself from all the errors he is ready to commit?

The performance of every operation in surgery once upon the dead subject before attempting it upon the living, is little else than a pitiful precaution against self-accusation. To derive improvement from exercises of this kind, they must be repeated frequently. The parts to be operated upon ought first of all to be dissected on one subject or on one side of the body, then the operation ought to be performed on another subject or on the other side, and lastly, the parts operated upon ought to be dissected, that the faults which have been committed may be ascertained. I grant you that in our country opportunities of doing all this as it ought to be done, are scarcely attainable. I regret probably more than any of you*, that the miserable prejudices of the vulgar should oblige us to learn our profession as if it were the trade of an outlaw, and force so many to practise it who have never learned it.

I formerly urged the necessity of studying the anatomical structure of the eye, as a preparatory

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* Amor quidem Anatomes nunquam me deseret; utinam occasio secandi amori responderet. Zinn.

step before attempting operations upon that organ, particularly on account of the delicacy and importance of its several minute parts. The same ground might be chosen for arguing the propriety of repeating carefully and frequently upon the dead body, the operations which are performed upon the eye. There is nothing capricious or accidental in the acquirement of a knowledge of any part of surgery, and as little in the acquirement of dexterity in the performance of eye-operations as of any other. A knowledge of operative surgery is to be acquired by the use of those faculties of man which work the surest, continue the longest in vigour, and at the same time make the least parade. The operations which are performed upon the eye have been by some represented as altogether peculiar, as requiring a delicacy of sensation which ought to be regarded rather as connate than as capable of being acquired. This is a mistake. Ophthalmic operations may be learned like any other part of surgery; and as one of the most valuable means, I would recommend repeated and patient exercises upon the dead subject.

One of the most certain signs of death is the *facies Hippocratica*, and one of the most striking alterations of the human physiognomy included under that name, is the hollow, flaccid, and lack-

lustre appearance of the eyes. The fact is, that if the eye-lids remain open during a long process of death, the aqueous humour is evaporated through the cornea, which consequently loses its transparency, convexity, and elasticity. In this state it is very difficult to perform upon the eye any surgical operation. The section of the cornea, one of the most important exercises of this kind, can scarcely be at all accomplished unless the eye be pretty firm; and, indeed, a considerable degree of resistance is essentially required for all the other operations.

In order to give the dead eye a degree of artificial elasticity necessary for operation, an instrument has been invented by my friend Dr. Jaeger of Vienna. The principle of this instrument is pressure, as it lays hold of the eye previously removed from the body, and by compressing the posterior part of it, forces the cornea to project and to re-assume a certain degree of firmness. When you cannot procure opportunities of operating on very recent subjects, this instrument may be employed with considerable advantage. Dr. Jaeger has adapted it to a skull, which he covers with a mask. The eye, held in the instrument, projects through the orbit, the posterior part of which is previously removed, and appears behind the eye-hole of the mask. The whole apparatus has

been considerably improved by Dr. Reisinger of Augsburg in Bavaria, whose name I have already had occasion to mention.

As for the manner of conducting the following Course of Lectures, I shall first of all take up the anatomy of the Eye-ball, and then consider such of its diseases as require operations. Of the diseases, I shall commence with cataract. I shall consider carefully the symptoms of each species of that disease, then institute a comparison between the different operations which may be practised for its cure, determine the cases proper for each mode of operating, and, lastly, describe the method in which the operations ought to be performed. Nearly in the same manner, I shall consider the other diseases of the eye-ball, which require operation. When I come to speak of artificial pupil, one of the most interesting subjects which falls under our discussion, I shall attempt to do what has as yet been almost neglected by surgical authors, namely, to point out the particular cases in which you ought to form an artificial pupil by incision, the cases which are proper for excision, and those which require the separation of the iris from its ciliary attachment.

The anatomy of the Eye-lids, and their diseases, follow next in order: after which comes a very important part of our subject, namely, the ana-

tomy and the diseases of the Lachrymal Organs. I do not know any topic in the whole compass of surgery which is so misunderstood, as that of fistula lachrymalis. I trust that I shall be able to shew you that under this name a variety of widely different diseases are confounded; and that after accurately distinguishing these different diseases, a successful method of treating each of them may be discovered, which could never be the case when they all passed indiscriminately under the unmeaning and misguiding name of fistula lachrymalis. Upon the diseases of the secreting parts of the lachrymal organs, I shall lay before you some very interesting facts, not generally known in this country.

Having finished the diseases requiring surgical operations, I mean to take up the inflammatory diseases of the Eye; a very extensive and a most important subject. I shall treat it with care, and in an order which I believe will interest you in what I shall have to say.

In this Course of Lectures I shall scarcely enter into any historical or controversial disquisitions, concerning the diseases of the eye, or concerning the operations which have been proposed for the cure of these diseases at different periods. I intend to confine myself to those views of the diseases of the eye and to those

operations which I believe to be the best, and which I have been induced to select from among those which are taught and practised either in this country, or in the schools and hospitals of France, Italy, and Germany, which I have myself visited. Above all, I shall endeavour to render justice to those doctrines and operations, in which I had the happiness to be particularly instructed by Professor Beer, during my residence in Vienna. Would that I could flatter myself that I had caught a spark from the enthusiasm of that learned and enlightened teacher, who has contributed so much to gain for his country this just eulogium, that as far as England is above France in a knowledge of this department of surgery, so far for the present is Germany above England!

Your having this day honoured me with your presence seems to say, that your feelings on the importance of the particular branch of surgery which I am about to teach are harmonious to my own. If I be still further honoured by your support in my purpose of giving public instructions, my gratitude shall manifest itself by increasing endeavours to communicate more and more useful information. Should I be unsuccessful, disappointment will not depress my love for a science, to acquire a knowledge of which I have traversed a considerable part of Europe, and

have spared neither time, nor labour, nor expense. I trust that I shall pursue it with the same ardour and the same delight. I know this, that if public labours of the present kind be unworthy of support, no art can save them from neglect.

THE END.

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AN ESSAY

ON

THE DISEASES OF THE EXCRETING PARTS

OF THE

LACHRYMAL ORGANS.

BY

WILLIAM MAC KENZIE.

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