

THE  
HISTORICAL RELATIONS  
OF  
ANCIENT HINDU WITH GREEK MEDICINE  
IN CONNECTION WITH THE STUDY  
OF  
MODERN MEDICAL SCIENCE IN INDIA:  
BEING  
A GENERAL INTRODUCTORY LECTURE  
**DELIVERED JUNE 1850;**  
AT THE  
CALCUTTA MEDICAL COLLEGE.

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BY  
ALLAN WEBB, M. D.,  
Author of the *Pathologia Indica* :  
SURGEON BENGAL ARMY,  
PROFESSOR OF DESCRIPTIVE AND SURGICAL ANATOMY,  
LATELY  
OFFG. PROFESSOR OF MEDICINE AND CLINICAL MEDICINE.

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## PREFATORY NOTICE.

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At the request of the Council of Education of India, this Lecture has now the honor of publication. In delivering it, the Author stood in a proverbially perilous position *between two chairs*; not feeling quite sure as to whether he had the honor to represent the chair of Anatomy or that of Medicine. He is conscious that some want of unity in his discourse has arisen from this circumstance, and hopes that it may be indulgently regarded.

The quotations from Sanscrit Authors have been collated with the originals, and whenever the authority was omitted in Dr. WISE's book, it has been supplied through the kindness of Pundit MOODUSUDUN GUPTOO.

A. W.

*No. 2, Russel Street :*

*July 9th, 1850.*



# INTRODUCTORY LECTURE.

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GENTLEMEN,

THE discourse, which I have this day the honor to address to you, opens the 16th Session of our Caleutta Medical College. Its past history has been placed before you already in the Introductory Lecture of my colleague, Dr. H. GOODEVE,\* but I will very briefly revert to some parts of it here. Our College was instituted in 1835. Two Assistant Surgeons of the Bengal Army, Messrs. Historical retrospect. BRAMLEY and GOODEVE, were appointed to instruct the students in "the various branches of Medical Science."† To them, in conjunction with the worthy Pundit MADHUSUDEN GUPTOO, belong the honor of introducing into India, the study of anatomy by practical dissections. I was present in 1838, with some whom I have the pleasure to meet here this day, upon the interesting occasion of giving the four first passed students their medical diplomas. The success of our College was felt at that time, by all well-wishers to India, by all who desired to raise her people in civilization, and to extend to them the blessings of European science, to be a great experiment. We can now hardly conceive of the diffidence, bordering upon distrust, with which it was at first

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\* June 1848.

† See Order in Council 28th January 1835, Resolution 4.

regarded.\* In the address of Dr. JOHN GRANT, upon the occasion alluded to, we observe the earnest, almost parental solicitude, with which he, and his colleagues of the Council of Education, watched over the success of this infant Institution; a success so mainly dependent upon the well-doing of its students.

“My young friends (he said) I now bid you farewell. Go on in the strength of a good cause, and earn for yourselves an honorable name, in an untried path. As I have said you are the first fruits of a great experiment; that of enfranchising the native mind from ignorance and dark prejudices. Recollect that the success, to a certain extent, of this most interesting experiment, depends upon your future career. A false step on your part might be productive of disastrous consequences to the great cause of Native education; to say nothing of the mortification which any misconduct, or failure of yours, would inflict upon your teachers, and upon us, your godfathers as I may say in the profession.”†

But the students of that day, as well as those who followed them, nobly responded to this earnest appeal. This College is now regarded no longer as an experiment; but as an admirable, beneficent and established triumph. It is thus honorably spoken of by the Bishop and Clergy, in the address, upon the late occasion of the Queen's Birthday.

“Her Majesty will, we are persuaded, be also pleased to learn, that the Indian Government has succeeded in a truly wonderful manner in diffusing through the land the soundest principles of medical science; that Graduates are being educated at the Medical College in a manner not inferior to some of the most celebrated schools of medicine in Europe; and that their skill and talents are successfully exerted for the mitigation of

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\* See Report of Council of Medical College, 1839, *Preface*. † *Ibid*, p. 25.

human suffering, in the various Dispensaries of the Provinces; whilst the magnificent Fever Hospital, which is now being erected in Calcutta, will not only prove an ornament and blessing to the Metropolis of India, but become eminently useful to the school of Medicine itself.”\*

But the degree of enfranchisement of the Native mind, and the measure of our success, can scarcely be appreciated without reference to Indian Medical Science as we found it in this country. I propose therefore an examination into the state of medicine here in India, previously to the introduction of European science; and I hope that a comparison of it, with medical science among the Greeks, may be found both interesting and instructive, as a *general introduction to the History of Medicine*; especially as respects—I. *Anatomy*, II. *Physiology*, III. *Pathology, and Practical Medicine*; for Dr. ROYLE has shown the extreme probability that Chemical Science, as well as *Materia Medica*, was well advanced in the ancient times of India: that Greeks and Arabs† alike profited by it.

But before proceeding further upon this subject, I will say a few words upon your own position and duties. There are, perhaps, no medical students at this moment in the world, to whom such great privileges are so fully and so freely given, of mere sovereign bounty, as those which you receive at the hand of Go-

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\* Christian Intelligeneer, Calcutta, June 1850.

† “Not unwilling to pluck a few more plumes from those who heated their baths with the Library of Alexandria,” he thinks it probable that GEBER, the earliest Arab Chemist, was instructed in *Rasayana* (Chemistry) from the *Ayur Veda*. In the “earliest of Arab authors SERAPION, the first of Hindoo Physicians, CHARAK, is mentioned by name;” in Latin translated “*XARCH Indus*” “*XARCHIA Indus*.” *Avicenna*, again says “apud, *SCIRAK Indum*” “*RIHAZES* inquit *SCARAC Indianus*” again “*dixit SARAC*.” *Essay on the Antiquity of Hindoo Medicine*, J. F. Royle, M. D., London, 1837, pp. 37, 39. *Ibid*, p. 177. *See also Hindu Medicine*, T. A. Wise, M. D., Calcutta, 1845, p. 118.

vernment. This medical school, however regarded, as respects its Instructive Establishment, its Hospitals, its Museums, or the number of patients and students who benefit by it, is now equal

Appeal to Students. to some of the most ancient schools of Europe; yet so far as I know it stands alone in this, that every advantage is freely given. Here no fees are paid! The finest Medical education is freely offered gratis, to all comers; of whatever creed, of whatever caste, of whatever clime. No wonder where all is thus freely given, that we find this goodly gathering of students, of all kindreds, and countries around us. From the Punjab to the Burman Empire, from Ceylon to the snowy mountains of the north, our young men assemble here; without any other jealousy than that of professional honor, any other distinction than that of science. All are equally welcome, equally rewarded, equally respected, if they do well.

It has been said—"knowledge is power," but knowledge and well-doing are not always synonymous. We sometimes see young men, not behind their fellows in the race of intelligence, lost, confounded, and ruined; having forgotten that man is not only an intelligent, but also a moral being. *Do to others as you would be done by*, is a grand rule for the medical student. Follow it out, and you *dare* not be idle here. To be so would stain your humanity, dishonour your profession, disgrace your College.

As Professor of Clinical Medicine my guidance of your studies has been but short; but it has afforded me additional reason to urge upon you this principle of *responsible humanity*. Watch over your patients with this principle true in your hearts, and your minds will seize, with powerful and tenacious grasp, the Clinical instruction of the Professor. It will become a sacred duty to record your cases accurately, to think of them earnestly. You will be the first students in the wards,

and the last to leave; your books will be read well, and well remembered, and understood.

It was said upon the occasion alluded to, of our first Graduates leaving the College,—“Your duties are four-fold; they concern the sick, the profession to which you belong, society at large, and the Government we all have the honor to serve. Of your duties to yourselves, I say nothing, deeming that they are self-evident to you. All these duties are based upon this very simple golden rule, to do to others as we would be done by. An inhuman, a dishonest, a licentious medical practitioner, is there not in the very expression something that jars upon the moral sense? If a physician be wanting in honor, in humanity, and in rectitude of conduct; what possible security have society for the confidence reposed in him? None! and where are those on the face of the earth, men in whose discretion, honor, and goodness, such a large measure of confidence is placed, as in medical men? If they want those qualities, then I emphatically say they want all: for the other qualities are naught without the moral ones. Scientific skill and experience, are like the sword of the loyal and brave; of use only when in the hands of the honest and true. Personal honor must be the loadstar of your conduct: without that, you will only be bringing a reproach upon the fair fame of our profession.”\*

You now see before you examples of what courage and conduct will do. DWARKANATH BOSE was the first of our gallant band of medical pioneers, to return to us with the diploma of the Royal College of Surgeons. He is now one of your teachers of Anatomy. SURJOO COOMAR CHUCKERBUTTY, just returned with the diploma of the London University, is Assistant Physician in our College Hospital. DRS. SEAL and BOSE both held

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\* Report of Council of Medical College, Calcutta, 4th February 1839, p. 26.

appointments in this City. It is not often that men pass at once from the schools to offices of such importance. In conferring these rewards upon such young men, the Government has strongly marked its interest in their welfare, and its desire to encourage you.

I now revert to the main subjects of this lecture.

Among the studies which have the strongest claim upon your attention, Anatomy stands first. It is the keystone of Medical science; take it away, and there is no stability. This truth is evident from the history of Medicine in all ages, the history of every school, nay of every individual medical man. For the acquisition of this science, no students possess more ample means and resources than yourselves; subjects abundantly supplied, airy and commodious rooms, and even books and instruments. The use of arsenic, as a disinfecting agent, preserves the subjects from putrefaction, the dissectors from danger. Since I have been attached to the College (now about nine years) there never was an instance of death from dissection wounds. In London hardly a season passed without horrible disease, or death, from this cause alone. Your Library and Museum are well supplied with books, as also with anatomical works and preparations. Microscopical Anatomy is now most fully elucidated, both in diagrams of great beauty and fidelity, as well as by the daily use of the microscope, at the lectures of the Professor of Physiology and General Anatomy. Remember that the grammar and the groundwork of anatomy is a knowledge of the bones; and when inclined to make difficulties, look at your fellow students of the Hindoostani class, who without a knowledge of the English language, without the same access to books and plates which you possess, do yet attain to a knowledge of this subject. Prejudices against the study of Anatomy are not confined to India. I have known the time in England even,

I. Ancient and Modern  
Anatomical methods.

when dissections could only be carried on at night. But “where there is a will there is a way,” which every earnest student soon makes out, and the way is much easier in Bengal now, than in the ancient times of *SUSHRUTA*, (the *GALEN* of India,) a Rishi of highest rank. The way is pleasanter too, as you will learn from the following, *his* direction for the ancient Hindoo process — “When a proper body for the purpose has been selected, the dejections are to be removed, the body washed, and placed in framework of wood, properly secured, by means of grass, hemp, or the like. The body is then to be placed in still water, in a situation in which it will not be destroyed by birds, fishes, or animals. It is to remain seven days in the water, when it will have become putrid. It is then to be removed to a convenient situation, and with a brush, made of reeds, hair, or bamboo-bark, the body is to be rubbed, so as by degrees to exhibit the skin, flesh, &c. ; which are each in their turn to be observed before being removed. In this manner the different corporeal parts of the body, already enumerated, will be exhibited ; but the life of the body is too ethereal to be distinguished by this process.”\* Imagine, gentlemen, the removal of such a body, after seven days’ putrefaction, to a convenient situation *in Calcutta!*

The Anatomical system of the ancient Hindoos (greatly resembling that of *PLATO*,) was precisely as superficial as might have been expected from this very original mode of acquiring anatomical science. It may be judged of by a single sentence ; —viz., “the navel is the origin of all the vessels, and is the principal seat of life.”† This is the Chinese notion ; and it was prevalent among the Jews also ; with them “health to the navel,” is health to the life !

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\* Commentary on the Hindu System of Medicine, by T. A. Wise, M. D., Calcutta, 1845, p. 68.

† *Ibid.*

The venerated father of Medicine, the great HIPPOCRATES, who lived nearly a thousand years before SUSHRUTA wrote, had a much more just conception of anatomical science than he; and yet neither in his time, nor for two centuries later, is there any distinct record of human dissections being practised by the Greeks. It was not until after the death of ALEXANDER the Great, and the institution of the Museum at Alexandria, (304 years B. C.,) that the great anatomists ERASISTRATUS, and HEROPHILUS recorded their discoveries. In the time of GALEN little even of their works remained extant. Yet had the Greeks noble witnesses of their anatomical skill. Their sculpture even to this very day is unrivalled for its truth and anatomical correctness. The agonizing group of the LAACON is still the admiration of our time, as it has been of preceding ages.

Could POLYODORUS, ATHENODORUS and AGESANDER of Rhodes have executed such works as this without a practical knowledge of anatomy? I believe it impossible. All the great artists of our times are practical anatomists. They know that expression is effected only by muscular action; and when a LANDSEER dissects the animals, whose expressions and passions he so wonderfully paints, we may conclude that PHIDIAS even could not work without it. Yet the most perfect specimens of Hindoo sculpture, the reliefs in their most ancient eastern temples, show nothing that for truth of form, can compare with Greek specimens of art. Neither at Ellora nor at Karli, not at Elephanta, nor even among the fresco paintings of Adjunta, have I seen any thing that would lead me to suppose they had ever attained to a knowledge of the muscles, or of their power in expression. From their writings therefore, and from their specimens of art, it may be concluded, that the Hindoos never attained to a better knowledge of anatomy, than this poking, in a puddle, at a putrid carcase, might be supposed to confer.

But if other arts and sciences are allied to Anatomy, Physiology, or the knowledge of the healthy actions of our bodily organs, is, as you well

II. Physiology.

know, immediately based upon it. Ignorance of the one argues the other unknown likewise, to the Hindoos. No fact can be more plainly deduced from history than this, that Medicine, in every age, has been guided by the prevailing doctrines in Physiology. And so pernicious have been these physiological doctrines among the ancients, when unsupported by Anatomy, so wild, inconsistent, and absurd, leading in practice to such strange vagaries, that about the time of GALEN they had well-nigh led to the absolute extinction of medical science. We may advantageously refer to some of them.

In the days of HIPPOCRATES the elementary theory was the only one known in Greece.\* He as well as PLATO taught that fire, air, earth, and water, were the elemental constituents of our bodies.† His views, and those which PYTHAGORAS entertained of health and disease, precisely accord with PLATO'S and the Hindoo SUSHRUTA'S. When we remember also that PYTHAGORAS introduced Brahminical institutions into Greece; that he as well as PLATO believed in the transmigration of souls; that Hindoos never travelled, but Greeks did; we can have very little doubt, that India was the source, whence the Greeks derived their systems of philosophy and of medicine.‡ The analogy between the Hindoo and Greek systems of medicine is certainly much too close to be the result of accident.

Of the Greek philosophers, THALES considered water as the principal element in the composition of our bodies; ANAXI-

\* HIPPOCRATIS Opera, Edit. 12° Lugduni. 1564 "lib. de carnibus," fol. 44.

† PLATONIS Op. Om. a Bekker, Timæus, c. 11. ἐκ γὰρ πυρὸς παντὸς ὕδατος τε καὶ ἀέρος καὶ γῆς ξυνέστησεν αὐτον ὁ ξυριστάς.

‡ PYTHAGORAS (B.C. 600)-is stated to have been in India—History of Medicine, W. HAMILTON, M. D., vol. I. page 43, Edit. London, 1831.

MINES thought air was chiefly concerned ; PYTHAGORAS gave fire as the main element ; XENOPHANES formed us of earth. EMPEDOCLES, the celebrated philosopher of Agrigentum, (B.C. 578,) is said to have first united all these various opinions, and given to each element its *proper* share in the composition of our bodies. Thus he explains the formation of the muscles by an unequal admixture of the four elements. The ligaments had a superabundance of fire and of earth. Bone had a greater quantity of earth and of water, and so forth.\* It appears therefore, gentlemen, that having found the “stuff” these wise men hardly knew what to do with it, in order to make a man. But the Greek writers become more intelligible to us moderns, especially PLATO, through the severer abstractions of the Hindoos. The Hindoos, for instance, boldly and fairly embody qualities. These qualities form elements of the elements, these subtle existences form atoms, or the grosser bodies—fire, air, earth, and water ; to which the Hindoo superadded *ether*, (*akasa*.)†

The Hindoo sage SUSHRUTA says “when digestion is accomplished, the respective elements unite with those which had entered into the formation of the body ; the earth unites with earth, water with water, &c., and they acting on the inherent qualities of each of the five elements, mix and increase those in the body ; smell, the property of earth, with that of the body, taste with water, touch with air, and sound with ether.”‡ This is exactly what EMPEDOCLES taught, viz., that sensations take place only through the affinity of elements composing the object perceived, with the elements of the perceptive organs or senses. He says, “by the earthy element, we perceive earth ; by the watery, water ; the air of heaven, by the aerial

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\* Hist. Med. KURT SPRENGEL, Tom. I. Sect. iii. p. 256 and p. 263.

† Hindu Medicine, T. A. WISE, M. D., 1845, p. 31.

‡ *Ibid*, p. 42. See Prof. H. H. WILSON'S Commentary upon the Sankhya Karika Philosophy, Oxford, 1837. Edit. 4to, p. 121.

element; and devouring fire, by the element of fire.”\* This passage has been commented upon both by ARISTOTLE† and by GALEN‡ as being somewhat obscure; but it is clearly interpreted by Hindoo philosophy;§ and beautifully paraphrased by MILTON.||

Both HIPPOCRATES and PLATO declare (B. C. 470,) the *humors* of the body to consist of four, blood, phlegm, black and yellow bile. CHARAKA and SUSHRUTA say air, bile, phlegm, blood, are the chief humors of the body. They are called by them “pillars of the system.” “If they be deranged they are the cause of disease.” “Without these the individual could not exist.” They assert that “as long as the elements remain in due proportion, the body remains in health;” “when any one is increased or diminished disease occurs.”¶ This causation of disease agrees precisely with HIPPOCRATES\*\* and with PLATO. PLATO says “the disproportion of the physical elements of the body is the proximate cause of all diseases;—since the marrow, the bones, the muscles and the ligaments consist of these elements, as also the blood and the humors derived from them. Disproportion of the elements produces

\* Γαίη μὲν γὰρ γαῖαν ὀπώπαμεν, ὕδατι δ' ὕδωρ  
Λιθέρι δ' αἰθέρα εἶαν, ἀτὰρ πυρὶ πῦρ ἀίχηλον :

Histoire Pragmatique de la Médecine KURT SPRENGEL, Paris. Tr. GEIGER. 1810, Tom. I. Sect. iii. p. 256 and p. 263.

† ARISTOTELIS Op. Edit. fol. Geneva, 1605. Tom. 1, p. 479.

‡ GALENI Op. Om. Frob. Edit. fol. 1561 de Hippoc. et Platon. decretis lib. VII. p. 543.

§ Pathologia Indica, ALLAN WEBB, 1848 Calcutta, 2nd Ed., Pt. II., p. 267.

|| Paradise Lost, Book V. v. 407.

¶ Hindu Medicine, T. A. WISE, 1845, p. 43 and p. 194.

\*\* HIPPOCRATIS COI Op. Edit 12mo. Lugduni 1564, “lib. de nat. hominis” fol. 25, “At vero corpus hominis habet in seipso sanguinem et pituita et bilem duplicem, flavam videlicet et nigram. Atque hæc sunt ipsi corporis natura, et per hæc et ægrotat, et sanus est.”

degeneration of the humors, and that degeneration again causes the different diseases.”\*

Thus far in Physiology the Hindoos and Greeks are one.

Now, gentlemen, we must examine, how this elemental theory, the sole philosophical basis of Greek  
 III. Pathology. and Hindoo medicine, is made to account for diseases. HIPPOCRATES taught that “the combination of the four elements into the four states or *qualities* with which they were affected, of hot, cold, moist and dry, gave rise to the four fluids or humors of the body; blood, phlegm, bile, and black bile, which originally tended to produce the four *temperaments*, and which, in their turn, contributed to the excess or defect of each of the humours.” Hence arose the pathological doctrines, which, under the denomination of the Humoral Pathology, became the prevailing opinion of all sects and of all theorists, until the commencement of the eighteenth century. (Cycl. of Pract. Med. 1. p. xi.)† Again PLATO was a great genius, for his thoughts on some matters have been powerfully impressive. But any one of you could confute his pathology, and smile at his absurd conceit in meddling with medicine. He *conjectured* (and his followers vainly thought conjecture would suffice), that the deliquescence of bone and of flesh, produces black and yellow bile, which passing into the vessels, and mixing with the blood become fruitful sources of disease; degeneration of the marrow induces the most malignant and even mortal maladies (a still common fallacy.) After this he comes to the true Hindoo Doctrine, and deals out diseases of *air*, of *phlegm*, and of *bile*, with as much

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\* τὸ δὲ τῶν ῥόσων ὄθεν ξυρίσταται, κ. τ. λ. Timæus c. 63, and away he goes into the thick of it. Again c. 66. τὸ μὲν ὑπὸ πνεύματος, τὸ δὲ φλέγματος, τὸ δὲ χολῆς. κ. τ. λ.

† Essay on the Antiquity of Hindoo Medicine, J. G. ROYLE, M. D., p. 110.

gravity as CHARAKA himself, who says, these humors being ill, are of all our ills the root. And a numerous catalogue he gives,—“ 80 diseases of air (*baya*), 40 of bile (*pitta*), 20 of phlegm, (*kapha*),”\* besides their compounds.

But to return to the Divine PLATO, pray attend to his pathological details, and then compare them with the Hindoo doctrine which follows. He says, “when *air* is deranged about the chest, difficult breathing and wasting consumptions follow; when *air* is deranged in the joints, or about the back, it causes tetanic spasms, violent pains, and convulsions so difficult of cure; and also fevers. When *phlegm* and *air* are deranged together, papular eruptions result; if combined with *black bile*, serious head-affections, and epilepsy. *Phlegm* is the origin of all the various kinds of defluxions, besides other ailments. From inflammation of the *bile*, exalting its natural heat, we have breaking *outwards*, abscesses, and tumours; or *inwardly*, it may cause painful burnings and destructive ulcerations. The *blood* may be impeded or altered by pus, and *bile*; it will then corrupt the various structures, till it reach the bones, and even marrow: here the cords of life are broken, and like a ship loosened from her anchorage, life departs.” He adds, “dysentery and diarrhoea arise from *phlegm*; a superfluity of *fire* is the cause of continued fever, quotidianis are due to an excess of *air*, tertians to that of *water*, and quartans to that of *earth*.”†

Now, gentlemen, let us see what the Hindoo SUSHRUTA says. “When *air* is deranged in the *blood*, it produces different painful eruptions, and tumours. When deranged with *fat*, it produces tumours, without pain. In *vessels*, it produces a contraction of their size, with pain and fulness. In *tendons*, it produces paralysis, with shaking pain and spasm. In *joints*, it

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\* Hindu Medicine, T. A. WISE, M. D., p. 214.

† PLATONIS Op. Om. a Bekker. Timæus, c. 67.

produces stiffness, pain, swelling, and emaciation; in the *bones* it produces pain and emaciation; in the *marrow* it causes acute pain. It produces rigidity of parts (*apotanoka*) by which the body is drawn aside, or backwards or forwards (tetanus,) and there is another form of the disease called *dhunus stamba* (trismus.) It affects particularly the lower jaw, and face, by drawing the neighbouring parts to one side or another. Chorea (St. Vitus' dance) (*halaia khunja*) is according to the 'Nedana'\* and SUSHRUTA also produced by derangements of air.

Observe also that the very same causes, the seasons, which are assigned by HIPPOCRATES,† SUSHRUTA also gives for *bile* increasing in *hot* weather, *phlegm* in *cold*. "When exposed to anger, to *hot weather*, especially during the months of September and October, and the middle of the day, or middle watch of the night the *bile is increased*. When *bile* is in unusual quantity it produces a disagreeable breath, hot and sour eructations, *with boils over the body*. The person is subject to fits of anger, his bowels are open, the skin distended, and he staggers as if drunk; *his body is hot*, the perspiration copious."

"When *air* is deranged with *bile* it produces *inflammation* and fainting; with *phlegm*, coldness and swelling of the affected part; *with blood* it produces a degree of pain like the penetration of a needle, sometimes deprivation of healthy sensation, and other symptoms of deranged *bile*."

Thus far we have SUSHRUTA upon *bile*. As for cold weather, and its product cold phlegm, he says, "The derangements of *phlegm*, are more liable to occur in the dewy, *cold*, and *spring months*, during the first third of the day, and after eating, produce a fulness of the abdomen, and the food the person eats is not properly digested; he has no appetite, and his body is

\* MADIABAKARA is said to be the author. A. W.

† HIPPOCRATIS Op. lib. "de natura hominis, fol. 26. Lugduni Edit. 12 mo. 1564."

pale, heavy, *cold*, and hard. The cure of these derangements is accompanied by the use of *dry* food.”\*

Now, gentlemen, I leave PLATO and HIPPOCRATES. You will, I think, agree with me that they are one in theory with the Hindoo sages SUSHRUTA and CHARAKA. If you really enter into their principles of the elemental theory, you will find in them the guide to ancient books upon Medicine. I have particularly dwelt upon the opinions of these two celebrated Greeks, as representing in fact the two great classes of medical men, till GALEN, who in a book devoted to the purpose (“*de Hippocratis et Platonis decretis*,”) endeavoured to harmonize their principles. One class were dazzled with the lofty conceptions and captivating eloquence of PLATO; another followed the more exact observation of Nature, and the cautious induction from experience, so conspicuous in his great contemporary. These last were so few, however, at the time when the illustrious GALEN appeared, that real practical medicine, as before mentioned, was well-nigh overwhelmed beneath the foreign pomp of various sciences and dogmas. Nor did GALEN himself ever attain to the truthful simplicity of the Coan Physician in clinical medicine.

The Hindoo doctrines, based upon the Vedas and Shastras, ever continued in India immutably the same. In Greece and Rome, great was the strife between the different sects in applying their various theories to the art of Medicine. Yet Dogmatists, Methodists, and Empirics, never wholly rejected the elemental theory. In the system of GALEN himself, especially in his therapeutics, it holds a prominent place. “He conceives that the properties of all medicines are derived from what he calls their elementary or cardinal qualities, heat, cold, moisture, and dryness. Each of these qualities is

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\* Hindu System of Medicine, T. A. WISE, M. D., p. 217.

again subdivided into four degrees, and a plant or medicine, according to his notion, is cold or hot in the first, second, third, or fourth gradation; if the disease be hot, or cold in any of these four stages, a medicine possessed of a contrary quality, and in the same proportionate degree of elementary heat, or cold, must be prescribed.\* This is a strange web of philosophical fiction! Yet a general belief in the hot and cold inherent qualities of medicines at this day pervades the whole of India. The most illiterate cooly, as well as the most learned Pundit, explains the action of medicines upon this Galenical principle only.

That the immortal GALEN should be led away to such an absurd hypothesis, only proves the power of preconceived ideas. In more important matters the acute intelligence of this great man, could wrestle against the prevailing notions, and spurn with indignation the impious opinions, (never imputed to the ancient Hindoo sages) that the glorious organization of the human frame, is the mere fortuitous aggregation of atoms, brought together by blind chance. With an admirable exertion of his reasoning powers, he could, and did infer from the exquisite mechanism of the thing made, that there must be a MAKER.

“What,” he says, “if you see a couch, you infer it was *made* to lie upon; if a boat, that it was *made* for floating in; if a house, its doors, its windows, and the proportion of its rooms, would lead you to infer it was *made* for human habitation. Yet you can look at man’s eye, at man’s heart, at man’s hand even, and believe these all chance work!” He breaks out into this remarkable passage “Who this God may be, I know not; but unknown I adore.”† Again in his book “*upon the uses of parts,*” he

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\* Pharmacologia, J. A. PARIS, M. D., London, 1829, p. 37.

† GALENI. Op. Edit. Froben. 1561. Basil, “de Hippoc. et Platon. decretis” lib. IX. Cap. 8, p. 571.

says\* “ But to waste words upon such brutish people, is only to be censured by better men, who will deem it but a profanation of the sacred gift of speech ; of that language, by which I now compose this book, a real Hymn, to the praise of our GREAT CREATOR. For, in my opinion, true religion consists not so much in sacrificing ten thousands of bulls upon his altars ; nor in offering before him costly incense, and fragrant perfumes ; as in first ourselves apprehending HIM ; and then making known unto others, HIS unerring wisdom ; HIS resistless power ; HIS all diffusive goodness. For to have beautified all his works, with such appropriate grace, to have excluded nothing from participation in his benefits, is a most manifest proof of ineffable goodness ; a goodness most worthy of our hymns of praise. Whilst to have known how best to effect this highest perfection of his works, declares his infinite wisdom. His almighty and all sufficient power is seen in this, that all things are made by his own sovereign will.”†

These were the sublime conceptions of GALEN. It would do us no harm, if in our investigations and studies we could imitate his piety. This tones and strengthens the spirit for those deep researches in which he was so successful.

His comprehensive mind was trained, and led on by his own experiments, to conclude,—that the nerves were not ligaments as they seemed to be to others;‡ but conductors of sensation and motion, by means of a subtle animal spirit, passing through their tubes :—that the arteries and left ventricle of the heart§ contained blood, not air, as was then believed ; and for a thousand years afterwards, until our great countryman, HARVEY reproduced proofs to the contrary, derived from GALEN.

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\* GALENI, op. cit. lib. III. “ lib. de usu part.” Cap. X. p. 265.”

† See ROMANS, Chap. I. v. 20.

‡ GAL. de HIPPOC. et PLATON decretis, lib. I. Cap. IX. p. 467, Vol. I.

§ *Ibid*, Cap. 5, Cap. 6.

Again, that the lungs got rid of the fuliginous part of the blood; that blood in the veins was darker than that in the arteries;\* that anastomosis took place between the extreme vessels; lastly that the valves of the heart prevented regurgitation of blood, was distinctly asserted by him. When we see him proving in spite of all cavil, that the voice did *not* proceed from the head as ZENO† declared, but from the larynx; that arteries *do not* degenerate into nerves as PRAXAGORAS affirmed;‡ that the heart *is not* the seat of intelligence, as said to be by CHRYSIPPUS, but the brain;§ that the carotid arteries *do not* carry spirit to the brain as ERASISTRATUS maintained, but blood;|| when we see bones and ligaments, joints and muscles, and viscera and senses described, reverentially admired, and understood, we are constrained to admit that he was really worthy of that glorious estimation in which he was held: a fame to which no one in our profession has since attained. For to the right methods of investigation which GALEN introduced, *i. e.*, experiment as opposed to conjecture, medicine owes its establishment as a science, and its emancipation from false theories and absurd conceits. Grand steps are these which I have enumerated towards our present Physiology; few of which appear to have been known to the Hindoos.—They knew, however, of the existence of the lacteals which he did not; nor we either, until 1615. They asserted that the chyle (globule) got its red color in the spleen, which is, I think, probable.¶

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\* GALENI, *op. cit. lib. VI. 'de usu part.'* Cap. 14, Cap. 17. Cap. 16. *Ibid, an sanguis in arteriis natura contineatur.* Cap. 8, p. 124. *Ibid, lib. 'de usu pulsuum,'* Cap. 5, p. 457.

† GAL. *de HIPPOC. et PLATON decretis,* lib. II. Cap. 5.

‡ *Ibid,* lib. 1, Cap. 7.

§ *Ibid,* lib. iii. Cap. 6.

|| *lib. de utilitate resp.* Cap. 5, p. 452.

¶ *Pathologia Indica,* ALLAN WEBB, *part ii,* 2nd Edit. Calcutta, 1848, p. 204.

But so prodigious are the attainments of some men now-a-day, so initutive their "*subjanta genius*," that they exclaim against the folly of searching out medical opinions before the time of JOHN HUNTER! JOHN HUNTER was a

History of Medicine, great man, ASTLEY COOPER, and JOHN Middle Ages.

ABERNETHY too were eminent, but they might have learned from a greater still. Both these surgeons taught that a broken spine was incurable. So I believed;—but tried to reduce one once, here, in Calcutta, and cured my patient. But when, elated with my success, I was about to publish this novel and wonderful case, I found GALEN had been before me, had got it all in '*his book*.\* I remember too a case (not mine,) of removing a piece of the sternum, and so exposing the heart, to relieve matter pressing upon it, behind the bone. This was quoted as a daring feat of *modern* surgery. I found it done sixteen centuries ago; and *Old* GALEN rather glorifies himself thereupon.†

For one thousand years at least, wherever medicine was taught as a science, the works of GALEN were appealed to as infallible. With a regard not less reverential than that of the Hindoos for their Vedas and Shastras, did the Christian world of Europe, and the Moslem world of Asia, look to him, as respects matters medical. He, and AVICENNA his successful imitator, were the chief authorities upon Medicine during that long, dark night, when monkish superstition overshadowed, and well-nigh extinguished in Europe, the light of science. The invention of printing in 1440, and the glorious reformation, dispelled this Egyptian darkness. The mind of Europe awoke. But no such light broke upon India. Until the institution of this College, as regards the science of

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\* GAL. in lib. '*HIPPOCRATIS de articulis commentar.*' lib. iii., Cap. 46, Vol. iii., p. 545. See the very curious plates Edit. Froben. 1561. Basil.

† GAL. *de Anat. Administr.* lib. vii., Cap. 12 et 13.

Medicine, India had not advanced one step since invaded by ALEXANDER. In Europe even, those powerful levers of modern medical science, Chemistry and the Microscope, have but lately burst open the hidden secrets of physical existence, and finally dispelled the elemental theory. "How little progress had been made till a very recent period in the examination of the nature of bodies as opposed to their movement, may be well understood from this fact, that in the popular works on science which were in circulation in our own childhood, fire, air, earth, and water, were still represented as the four elements of the universe. To what point the inquiry into these subjects may be carried hereafter, it seems impossible to anticipate: the doctrine of atoms appears indeed to be bringing us to the very elements of physical existence; while the study of the phenomena of Electricity, of Magnetism, and above all of what is called *Animal Magnetism*, seems to promise that in the course of years, or it may be of centuries, we may arrive at some glimpses of a yet higher mystery, the relations of physical and moral existence towards each other, and the principle of animal life."\*

During these middle ages little was added of importance to Medical Science. India was perhaps in advance of Europe as respects practical medicine. Anatomy was not taught by dissections till in 1315, MONDINI DI LUZZI publicly demonstrated at Bologna in Italy.† The Arabs, more strictly fettered by their religious creed than the Hindoos, were prohibited absolutely from the practical study of Anatomy; whatever they did know upon the subject they derived from the Greeks, and GALEN was their chief authority. For many years after I

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\* Divisions and mutual relations of knowledge, a lecture by T. ARNOLD, D. D., Rugby, 1839, p. 11.

† Hist. Prag. de la Medicine, KURT SPRENGEL, Sect. vii., Vol. ii. p. 485.

became attached to this College, the Students who formed the great majority of the Hindoostani class, being Mahomedans, it was supposed impossible to engage them in practical dissections. Many an earnest consultation have I had with Pundit MOODOOSODEN GUPTOO upon this subject. He was sanguine of success as respects them, if in dissection they should be allowed the same opportunities with the English class. When the dissecting rooms were placed by Government under my charge,\* the wish of my good friend was accomplished; and he did succeed, with one or two exceptions, in engaging the Military Students of the class in actual practical dissections. I had at that time, and have often had it since, the great satisfaction of recording publicly the efficient attainments of this class of students. Taught in the Oordoo language, their only Manual of Anatomy, the notes they had taken at the Pundit's lectures, the admirable perseverance of these young men overcame all difficulties under the kindly guidance of their preceptor. This College achieved another triumph, and Pundit MOODOOSODEN GUPTOO gained another laurel, when for the first time in India at all events, Mahomedans were seen in classes, engaged in dissections; studying Anatomy in their own language. We must all rejoice at the success of this great experiment, which has, in the vernacular tongue, brought within the grasp of the people that knowledge which is of all others the foundation of medical science. Now that the splendid work upon Anatomy, which my colleague Dr. MOUAT has completed, in the Oordoo language, is in the hands of these Students, their difficulties are much less. It is, I apprehend, the first work upon the subject, which has been compiled for Mahomedan students since the time of GALEN.†

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\* Appointed Professor of Military Surgery 1845.

† CLOT BEX may have done in Egypt something of the same kind?

We have seen that neither in Anatomy, nor in Physiology, nor in Pathology even, did the ancient Hindoos ever so much as get into the right road. The Greeks did. They studied Anatomy by dissection, Physiology by experiment, by observation, and by the light of Comparative Anatomy; as the works of ARISTOTLE\* who had charge of that great museum formed at Alexandria, where animals were assembled from all parts of the world, at such a vast expense sufficiently indicate. There is nothing in the Hindoo authors that I know of that deserves the name of Clinical Medicine. Yet the cases left us by HIPPOCRATES are recorded with so much care, so much accuracy, and so much of what I may call propriety, by which I mean the proportion which each part bears to the whole, that they are models of imitation to this day. They are, in fact, just such abstracts as I in this theatre, have repeatedly urged you to make out, from your own daily history of cases; when the case is closed. All the great features should be boldly drawn, the treatment briefly indicated, and the result stated.†

Now, gentlemen, you see that such acute reasoners as were the sages of India and of Greece, they could not by mere reasoning and conjecture understand or explain disease: and if you analyse your own knowledge, you will find that besides your Anatomy and Physio-

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\* “ Alexandre fut aussi le protecteur des arts et des sciences, et il eueut une telle estime pour le célèbre Aristote, son maître, qui lui en avait inspiré le goût, qu’il lui fit don du Nymphéum, campagne près de Mieza, où il put se livrer sans trouble à ses recherches sur la nature. Pintareh, Vita, Alexandr, p. 668. \* \* \* \* \*

Quelques auteurs, entre autres Athénée, prétendent qu’Aristote recout d’Alexandre jusqu’à huit cents talens pour servir à ses recherches sur l’histoire naturelle; mais on pent eroire que cette somme est exagérée.” Vide Sculze, p. 358. Histoire prag. de la Médecine, Tom. I. Sect. IV., p. 417.

† HIPPOCRATIS Op. Om. fol. Edit. Francof. 1624, lib. iii. lib. vii. de morb. vulgar.

logy, so widely extended beyond theirs, you have been taught to understand diseased actions by means of *Morbid Anatomy*.

This study which has beyond all others contributed in modern times to the progress of our art, and which was scarcely known to the ancients, seems to have grown up almost accidentally under those great men who in Italy first taught publicly by human dissections. The bodies were procured from the hospitals, which were at first established rather as refuges for the destitute, than as infirmaries for the sick. But the Great MORGAGNI never let pass any opportunity of enquiring into the cause of death in the bodies upon which he publicly demonstrated. All his facts were recorded; and compared with those he could obtain from others; and his great work "*De sedibus et causis morborum*" was the result.

In Europe, the Schools of Medicine generally rose up in the neighbourhood of hospitals. Others followed in the tract of the Great MORGAGNI, and morbid anatomy is now a science. *Clinical Experience and Morbid Anatomy are our best guides to a knowledge of disease.*

In 1843 the museum of our College was constituted by the orders of Government a '*central depôt for pathological contributions, from every part of the Indian Empire.*' The conservation, arrangement, and classification of the specimens, was for many years a part of my office. You now see assembled from all parts of India, preparations of diseased structure, *an Indian Museum of Morbid Anatomy*. In order to make it more generally useful I published a work founded upon these specimens which I hope may yet be completed. In this '*Pathologia Indica*' I have been zealously aided by our own students, and I have gratefully recorded it.\* But we must go on my

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\* '*Pathologia Indica*,' or the Anatomy of Indian Diseases, based upon the morbid specimens in the Museum of the Calcutta Medical College: by ALLAN WEBB, B. M. S., 2nd Edition, Calcutta, 1848, see Part I. p. 149, p. 57, Part II. p. 325 &c., and the work generally for cases by students.

young friends, the work is for you and those who come after to complete. Do not think even when you leave this College that all is done. Remember the melancholy catalogue of diseases, which are not yet understood, are not cured; leprosy, pthisis, cholera and elephantiasis, are such; besides a long list of nervous disease *the scandala medicorum*.

But what could the ancients do in explaining disease without this knowledge of Morbid Anatomy. If you are not weary, we will see how they applied their theories.

Suppose we examine diseases of the eye, according to SUSHRUTA'S Pathology. He says "the flesh of the eye being produced from the earth, the blood from the fire, the black parts from the air, the white parts from the water, and the canals for the tears from the ether." "Its inflammations are of four kinds, produced, by derangement of the humors, *air, bile, phlegm* and *blood*; the humors when diseased, passing into vessels of the eye. Of *blood* it is said, if diseased, it will destroy the organ in five days—if *phlegm* in seven days—if *air* in six days—if *bile* in one day"!!\*

Now the eye being transparent, we can see what goes on in disease. A modern surgeon sees ulcers in the cornea, he knows that their cicatrization may render this part of the eye permanently opaque. If the ulcer progress, layer after layer of the cornea may give way, and the *internal* humors be evacuated. If the iris be attacked with inflammation the pupil may be closed by adhesion, and the access of light to the retina intercepted. The lens itself or its capsule becomes opaque, and blindness follows. Now, in all these instances, there is no vague idea respecting *blood, phlegm, and bile*; but the surgeon is directed in his methods of cure, by the actual condition of the structures which he has for himself observed.

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\* Hindu system of medicine, T. A. WISE, M. D., 1845, pp. 292, 293.

In like manner if we take disease of the heart, and examine SUSHRUTA'S views.—Thus “when produced by deranged *air*, it is said to be accompanied by acute pain—when by deranged *bile*, it produces fainting—when by *phlegm*, the patient feels heaviness at the heart.”\* The methods of cure are directed specially to each of these conditions. Now what does morbid anatomy shew us. We look in our Museum at the structure of the heart diseased; and find in one instance, that its muscular walls are thickened to double their usual size, producing one set of symptoms;—or we see them reduced to the thinness of an orange-peel, with another set of symptoms;—or that its cavities are greatly contracted, or preternaturally dilated;—or its valves will not act; for they may have become torn, or ulcerated, or encrusted with vegetations. In each of these conditions we discern a cause for the existing symptoms. We even find in some of these lesions of the heart which retard the blood, making it to stagnate in the returning vessels, as the branches of the *venæ cavæ*, a proximate cause for various kinds of dropsy. But if we were to search for the causation of this last disease in the writings of SUSHRUTA or CHARAKA, or any other Hindoo Sage, we still find the same story, “Of heart disease three kinds are produced by *air*, *bile* and *phlegm* when affected separately, —three when two humors are deranged—one when three are deranged at the same time.”† These four words, *air*, *blood*, *phlegm*, *bile*, as fully explain the mysteries of Hindoo pathology, as, ‘*pax vobiscum*,’ represents in the mouth of WAMBA, the son of WITLESS, all requisite learning, all monkish theology.‡

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\* Hindoo Medicine, T. A. WISE, pp. 369 and 427, &c.

† Op. Cit., p. 326.

‡ IVANHOE.

It has been said that practical medicine among the ancient Hindoos had attained to greater eminence than the ruins of their pathology which we have been considering would indicate. In therapeutics we do hear of cures now-a-days of epilepsy and lepra, by combinations of drugs reputed to be of great antiquity. Professor ROYLE

Ancient Hindu Practical Medicine.

proves that Greeks and Arabs borrowed from their materia medica. In midwifery we find that embryotomy was practised, and rules laid down for delivery. In surgery lithotomy is described, operations for new ears and noses, for piles, fistula, cataract, &c. But among the ruins of ancient Hindoo Medicine, the practice of Mesmerism may, I think, be mentioned as most curious. By passes and breathings those itinerant priests of ESCULAPIUS, the '*Jhar phonknawallas*,'\* profess to cure, and do cure rheumatism, palsy, epilepsy, just such as Mesmerism is known to cure. Assiduously muttering their munters, they yet continue to make passes from head to foot; the body of the operator being kept steadily in contact or relation with his patient. To these and these only may fairly be attributed the cure. And so general is the practice that there is hardly a village in India, in which it does not exist.

In the Mesmeric Hospital, so successfully established by Government in this city under the superintendence of Dr. ESDAILE,—you have all witnessed, or you might have done so, at any time these last two years,—the power of animal magnetism to render the human frame absolutely insensible to pain during the most formidable operations of surgery. But what is of still more importance, you might have seen also the power of this subtle agent to cure different forms of paralysis. A Hindoo student was brought to me as acting Professor

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\* جہاز *Pass* پھونکنا *breathe* والا *person*.

of Medicine by one of your fellow students, probably now present, from a place some 25 miles off. The patient could express himself by writing in Persian or in Bengali, but had been dumb for a year and half;—after coma and fever. The tongue was immovably retracted. He was said to have consulted in vain most eminent physicians in this city. I advised Mesmerism, the liberality of Dr. ESDAILE provided means, he was cured in his hospital by his Native Mesmerisers in about a fortnight; and can now speak as well as ever he did. This is not a solitary instance.

The practicability, which has been daily demonstrated in the Mesmeric Hospital in this city, of performing the most dreadful operations of Surgery without pain to the patient, must be regarded as the greatest medical triumph in our own days. I cannot now recal without astonishment at what I witnessed the extirpation of a cancerous eye, while the man looked at me unwinkingly, unflinchingly, with the other eye. Another man looked dreamingly on with half-closed eyes, the whole time of an operation, even whilst I examined the nature of the malignant tumour I had removed, and then having satisfied myself, concluded the operation. The use of chloroform and other anæsthetic agents, which are universally adopted now, followed as necessarily upon the discovery of the anæsthetic power of animal magnetism,\* as did the use of the ligature to suppress bleeding, upon the discovery of the circulation. Now the surgeon being able to command the effusion of blood either by pressing upon the blood-vessels or

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\* This term is used by me, as more intelligible to the students than that of "*Animal odyle, or odylie influence,*" which has been substituted by BARON VON REICHENBACH, (see *Researches on Magnetism*, part I. p. 164,) in a work which has done more to clear up the study of what I must once again call animal magnetism than any thing ever yet attempted. This '*odylie influence*' is quite as powerfully developed in a crystal as in a magnet. The human hand may be charged with it from a crystal or a magnet; but the

by tying them, and by Mesmerism or chloroform to render his operation painless, there seems but little left to desire in surgery but real anatomical skill.

But in justice also to the Hindoos we may add that it is very probable that at a time, 1460, when in Europe COLOT, an eminent surgeon, was obliged to beg a man's life from the gallows, in order to prove that the operation of lithotomy was not necessarily fatal,\* this very operation was in com-

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hand charged will not attract iron filings, neither will the crystal, therefore, although *like* magnetism it is yet different. It is *luminous* in the dark, in the magnet, the crystal, and the *human hand*: and howsoever obtained, from digestion, chemical decomposition, the sun's rays, from heat, or from electricity, its lambent light is seen by *sensitive eyes*, and the power has upon them its peculiar effects. Many people in Calcutta, not sensitives, saw light as of fire, pass between the hand of Mr. ALIN and the head of his subject, whom he was attracting. This I did not see, but heard from their own lips. *I have seen* in Dr. ESDAILE'S Hospital bodies charged 'odylically,' (I may not say magnetized) produce the same effect upon his '*sensitives*', (Hindoo patients,) or even more striking effects than those recorded by the Baron, as seen at Vienna. A piece of paper no bigger than a wafer, charged odylically, and dropped upon the patient's hand, has rendered it insensible, and fixed it to the bed; a brick floor charged odylically has tied a man by the leg; a good stare at a plaster wall has charged *it* odylically, so that a man passing by and his head placed against it, has been so forcibly attracted, he could by no means get away; a gold watch-guard charged odylically has rendered rigid and insensible any limb upon which it was wound; even a glass of water charged in like manner has had like effects. Dr. ESDAILE rarely walks abroad without a spare charge or two at the service of his friends. And some hundreds of the students were present, when at my request, and for demonstration at my anatomical lecture, he put on his spectacles and charged by a good stare a poor cooly in the next room, till he was brought in insensible; and every important group of muscles demonstrated on the *living* body, in their proper action, one after another:—the theatre offering from top to bottom a sea of living wondering heads, for it had been noised abroad in the College that "*the dead man was living*," and standing upright!

\* COLOT, surgeon to LOUIS XI., the man was to be pardoned if he consented, and lived; which he did. History of Medicine, W. HAMILTON, Vol. I. p. 397.

mon use by the *Baidias* of India. But here again, gentlemen, how vast the difference between the marvellous rapidity and success of this operation in the hands of your Professor of Surgery, and the rude barbarism of SUSHRUTA. At the Native Hospital I have seen large stones crushed in the bladder, and thus removed by my former colleague Dr. JACKSON, without pain and without cutting at all; or if cutting be required the patient is first made insensible to pain by chloroform. In a report of that hospital, which has just been published (1850,) it is said “it cannot fail to be a subject of thankfulness and gratification to the Governors to be assured that in one hundred and thirty-two operations, which have been performed in the Native Hospital during the years 1848 and 1849, not one case has occurred in which death could be traced to the use of chloroform.” Yet it was used in all of them.

I find the operation for cataract is fairly described by SUSHRUTA. It was generally practised in this country before we arrived. It is probable too that even at a time when the princes of Europe could find no oculist and were obliged to send into Asia,\* this operation was common in India. It is very true that the itinerant *Baidias* do occasionally poke out eyes; but it is equally true that I have seen in various parts of India† many eyes to which they had restored sight.

The glory therefore of *introducing* this operation into India does not fairly belong to us. In a modified sense only can we claim for this College the praise so eloquently accorded by Colonel SYKES—“I affirm, (he says) that this faculty given to a single native to perform the godlike office of restoring the blind of his countrymen to sight, is a more

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\* Hist. Pragm. de la Med., KURT SPRENGEL, Vol. II. Sect. vii., p. 254.

† At that fine institution the Government eye-infirmary in this city, in charge of my friend Dr. MARTIN, many such cases are met with. He points out a tremulous shaking motion of the iris as common to their operations even when successful.

glorious monument than all the works of art that human pride or human ambition have ever burthened the earth with;" It is for you, gentlemen, to raise that peaceful trophy to a wise Government for founding this College, which its eloquent advocate, already quoted, desires. Do but succeed, and then with him, "I say, and with a thorough conviction of the truth of my assertion, in case the seeds of knowledge we have sown fructify to a general and luxurious harvest, that we shall have left a monument compared with which those of ASHOKA, CHUNDRA GUPTA, and SHAH JEHAN, or any other Indian potentate sink into insignificance."\*

And now, gentlemen, if you contrast the means by which we endeavour to instruct you in the science of medicine, with those which I have alluded to, as practised by the ancients, you will, I think, find reason to congratulate yourselves. Medicine is not an exact science in itself; but we endeavour to furnish you with exact knowledge of sciences which may be applied to the ever varying forms of disease. Your early studies will be I. Chemistry, II. Botany, III. Materia Medica, and IV. Anatomy. Of the application of Anatomy I need say no more, perhaps I have already magnified my office, but without it you can do nothing.

By a knowledge of Chemistry you see that the air, the earth, and the water, are themselves compound bodies; and are decomposed and changed by our own living organism; in which composition and decomposition are perpetually going on. The used-up and effete parts of our bodies being thrown out by one set of organs, and new matter assimilated from our food, deposited by another set of organs. Even in diseased processes noxious products are generated, often to be detected by chemical tests.

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\* General Report on Public Instruction in Bengal, 1847-48, p. 94.

By one of the most admirable combinations of profound thoughts to which our age can point, M. LIEBIG has led us to the conception, that all our motive power is derived from the processes of digestion and nutrition, and all our animal heat from respiration. In other words both *our motive power and heat are derived from chemical action*. The so-called animal magnetism is associated, says Baron REICHENBACH, with animal heat, and comes, goes, flows out, and is dissipated, like it. The chemical action of the body which yields heat, yields also, he says, crystalline force, magnetism, or whatever we choose to call this peculiar influence. *This is the origin of the force which flows in a polar form, from our hands and fingers as from a magnet.\**

Botany signifies no longer a mere catalogue of plants. It is not studied only to identify those numerous plants which are used as medicines. It now assumes as a branch of medical instruction a most important place. Its microscopical demonstrations, so simple, so exquisitely beautiful, have an immediate application to the structural anatomy of our own bodies. The production of cells, the growth of cells, the arrangement of cells, whether flattened into membranes, or elongated into tubes, are demonstrated with such a clear simplicity, as can scarcely be attained in animal bodies. The structural anatomy of plants, therefore, so constantly shown at the lecture of the Professor of Botany, forms a delightful introduction to human structural anatomy. The production of oil and fat in plants through the intervention of cells, is so like that which we observe in animals, that the difference is hardly to be detected; but in plants you *see* the mode of its production.

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\* Researches on Magnetism, Heat, Light, Electricity, Crystallization and Chemical Attraction in their relations to vital force, by KARL BARON VON REICHENBACH, translated by W. GREGORY, M. D., Professor of Chemistry. Edin. London, 1850, part I., 2nd Edit. p. 122.

When we find fat occupying the place of the muscular structure of the heart in man, or blocking up the liver, and oil globules even in the interior of the muscular fibre, this disease reminds us of vegetable growth. Colloid and cancer appear to grow with their own independent vegetative vitality. The line of demarkation between healthy and diseased growths is often not easily found. Besides this, real vegetable growths are produced, increase, and multiply in the living human body, and constitute disease; especially upon mucous membranes. One remarkable instance of this in the air passages, occurred in a patient of mine in Calcutta. She coughed up lumps of fat, and flakes of vegetable membrane, more than would suffice to cover twice over the whole of the air tubes; which they occasionally blocked up, to the imminent hazard of suffocation. This vegetable mould of fungi and fuci, commenced growing about the end of the rains, when in Bengal, the hat you take off at night is mouldy before morning.

It required a most intimate acquaintance with the elementary forms of animal and vegetable tissues, and the aid of chemistry and the microscope, to detect their real nature. In this instance it is to the Professor of Physiology I owe the discovery.\* From his lectures you will learn how the recent discoveries of normal cellular growths explain the production of diseased cellular growths. From him you will acquire also a knowledge of floating cells;—of the blood.

The Professor of Materia Medica requires your knowledge of Chemistry, and of Botany, and of Physiology, as preliminary to your understanding the composition of drugs, and their peculiar virtues, or their operation as medicines. A right

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\* I trust that Professor WALKER will ere long publish his discoveries respecting the nature and manner of growth of these microscopic plants.

understanding of the healthy condition of the blood must precede our knowledge of its diseases, and of their remedies. This again is only acquired by the study of microscopic anatomy, and the chemistry of molecular matter. "Thus it was the observation of the deficiency of red globules in the blood of the tuberculous, (which is always accompanied by deficiency or vitiation of the fibrine) that first suggested the propriety of employing iron in that diathesis; and a similar deficiency of carbon, or the oil globule in the elaborated chyle, (which is also always accompanied by some defect of the fibrine) in like manner led to the use of the cod-liver oil."\*

You will see therefore, my young friends, that these sciences Anatomy, Chemistry and Botany, engage your attention during the first years of your studies.

General Anatomy and Physiology, the theory and practice of medicine, the operative parts of medicine,—surgery and midwifery—will then be studied, under their special Professors; and their actual application pointed out in the wards of the Medical Hospital, of the Surgical Hospital, and of the Female Hospital. This is what is called technically "*walking the hospitals*"; where you observe diseases for yourselves, aided by these preliminary studies, and clinical instruction from your Professors. The general application of medical science to legal investigations will be shewn by our new Professor of Medical Jurisprudence.

But, believe me, gentlemen, that you are greatly mistaken if you think that your work is ended when you get your diplomas in our profession. You must ever continue to be students, you cannot even stand still. It is when you leave this College, that the most valuable part of your education

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\* Introductory Lecture to the Clinical Courses of Medicine, D. NELSON, M. D., 1849, p. 17. Delivered at the Birmingham School of Medicine.

begins. Then you must apply with all earnestness to educate yourselves in the observation and treatment of diseases; *record* your observations, reflect on your observations, and communicate with others upon the results. It is only in this way that our science advances. India presents for you a fine field of observation. I trust that the Graduates of our College, now a numerous band of well educated men, will find some means of communicating and *publishing* the facts they may discover. I should be glad that any observations of mine should lead to a result so practically important.\* Bombay and Madras both possess flourishing schools of medicine. It is not likely therefore that you will lack competitors for fame.

Finally, I would conclude in the words of a true friend of yours, the Honorable Mr. MILLET, and they are words of weighty import. "Consider seriously the nature of the honorable profession you have chosen. It will be yours—God's blessing resting upon your labours—to assuage bodily pain, to prevent fatal or disabling effects of the many injuries and disorders to which the human frame, in the varied circumstances of life, is liable; to restore sight to the blind, and oftentimes to prolong life when to all outward appearance it is hastening to its close, these are great talents committed to you—see that you duly improve them."

This, gentlemen, is the noble Charter of our profession—  
"DO GOOD UNTO ALL MEN."

And now with every good wish for your future success in life I heartily bid you farewell.

THE END.

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\* There is not a single Medical Journal now, I believe, in all India! Is this reproach to continue?—A. W.