

**Annual report of the Medical College of Bengal : twelfth year, session 1846-47 / under the immediate control and superintendence of the Council of Education.**

**Contributors**

Medical College of Bengal.  
Royal College of Physicians of London

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ANNUAL REPORT

OF THE

MEDICAL COLLEGE OF BENGAL.

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TWELFTH YEAR. SESSION 1846-47.

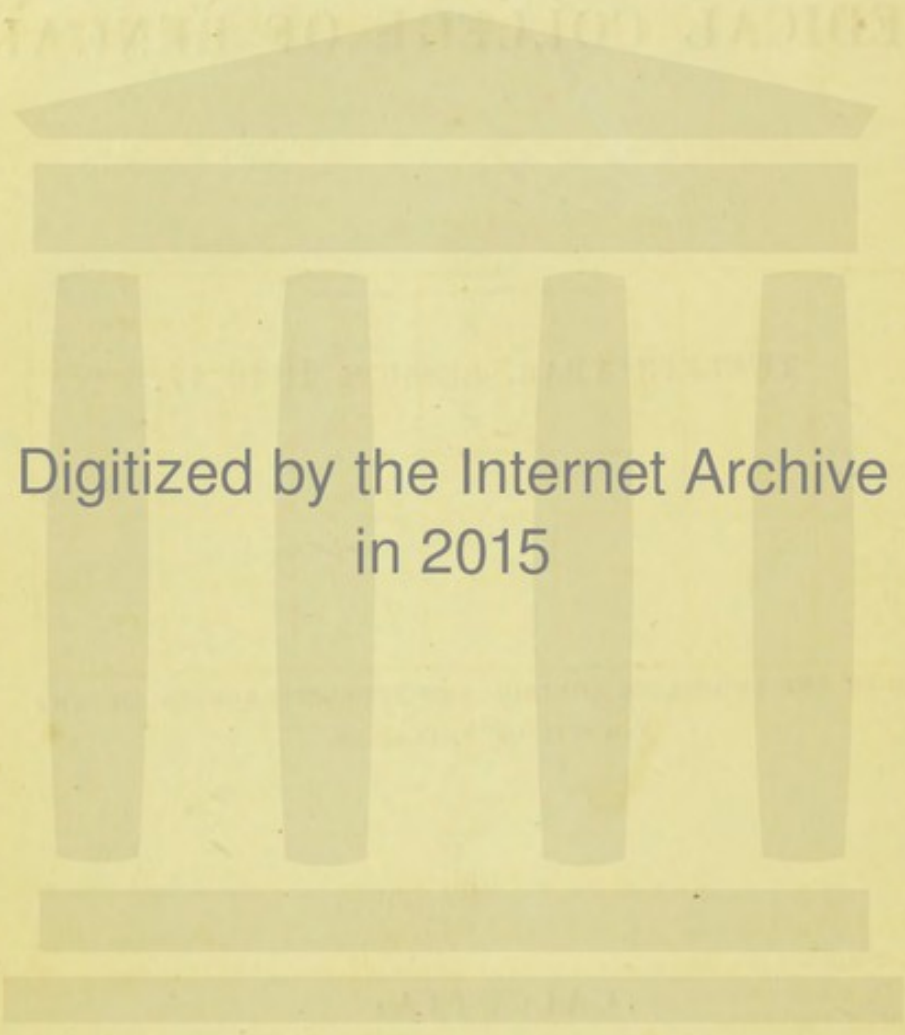
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UNDER THE IMMEDIATE CONTROL AND SUPERINTENDENCE OF THE  
COUNCIL OF EDUCATION.

CALCUTTA:

W. RIDSDALE, MILITARY ORPHAN PRESS.

1847.



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*Erratum in Page 3.*

	No. of Lectures given.	No. of Students attending.	Total present in all Lectures during the Session.	Do. absent during the Session.	Daily average.	
					Present.	Absent.
Botany, .....	70	44	2820	260	40.28	3.71

Date	Particulars	Debit	Credit	Balance	Total	Remarks
1911	Jan 1	1000		1000		Opening Balance
1911	Jan 15	500	200	700		Cash on hand

ANNUAL REPORT  
OF THE  
MEDICAL COLLEGE OF BENGAL.

TWELFTH YEAR. SESSION 1846-47.

*Under the immediate control and superintendence of the Council  
of Education.*

PRESIDENT.

The Hon'ble C. H. Cameron, *4th Ordinary Member of the Supreme Council.*

MEMBERS.

J. W. Colvile, Esq.—*Advocate General.*  
E. A. Samuells, Esq. C. S.—*Legal Remembrancer.*  
J. Grant, Esq.—*Senior Surgeon, Apothecary General.*  
J. Forsyth, Esq.—*Surgeon, Secretary Medical Board.*  
Russomoy Dutt, Esq.—*Commissioner Court of Requests.*  
Prosuno Coomar Tagore, Esq.—*Government Vakeel, Sudder Dewany.*

MEMBER AND SECRETARY.

F. J. Mouat, M. D.—*Assistant Surgeon, Bengal Army.*

COLLEGE COUNCIL.

J. Jackson, Esq. M. B., F.R.C.S.	Allan Webb, Esq.
J. T. Pearson, Esq.	J. McClelland, Esq., F.L.S.
D. Stewart, Esq. M. D.	Fred. J. Mouat, Esq., M. D., F.R.
R. O'Shaughnessy, Esq., F.R.C.S.	C. S.— <i>Member, Secretary and Treasurer.</i>

INSTRUCTIVE ESTABLISHMENT.

*English Department.*

*Officiating Professor of Anatomy and Physiology*—J. T. Pearson, Esq.  
*Demonstrator of Anatomy and Curator of the Museum*—Allan Webb, Esq.  
*Native Demonstrator of Anatomy*—Pundit Madusùden Gupta.  
*Lecturer on Chemistry and Practical Pharmacy*—A. Robertson, Esq.  
*Officiating Professor of Botany*—J. McClelland, Esq.  
*Professor of Medical and Clinical Medicine*—Dr. Jackson.  
*Professor of Surgery and Clinical Surgery*—R. O'Shaughnessy, Esq.,  
*Professor of Midwifery*—Dr. Stewart.  
*Professor of Materia Medica and Medical Jurisprudence*—Dr. Mouat.

MILITARY CLASS.

*Professor of Military Surgery*—Allan Webb, Esq.  
*Superintendent & Teacher of Anatomy & Surgery*—Pundit Madusùden  
Gupta.  
*Teacher of Medicine and Materia Medica*—Sub-Assistant Surgeon Sib  
Chunder Kurmokar.



## MALE HOSPITAL.

Physician—*Professor Jackson.*Surgeon—*Professor R. O'Shaughnessy.*House Surgeon and Apothecary—*Mr. George Daly, G. M. C. B.*

## FEMALE AND LYING-IN HOSPITAL.

Physician—*Professor Stewart.*Resident Surgeon—*Dwarkanath Bose, M. R. C. S. E.*Goodeve Scholar—*Tumeez Khan.*

## OUT-DOOR DISPENSARY.

Superintendent—*Mr. G. Daly.*

The following is a list of the pupils in the English Class at the close of the session.

Stipendiary Students, .....	36*
Robertson Scholars, .....	2
Free and Ceylon Students, .....	34
Members of the European } Subordinate Medl. Dept., &c. }	3
Total, .....	75

Of the Hindu pupils there are—

Brahmins, .....	11
Koists, .....	15
Boyddows, .....	3
Tantys, .....	3

In the Military Class there are at present ninety-nine students upon the full pay of five rupees per mensem; one pupil from Etawah supported by the Government of North West Provinces, ten supernumerary students, and nine pupils from Assam for special service in that province, making in all one hundred and nineteen students.

Of these 109 are Mussulmans and 10 Hindus.

Of the Hindu pupils there are.....

{	3	<i>Kaists.</i>
	3	<i>Rowanys.</i>
	4	<i>Chuttrys.</i>

Of the Mahomedans 78 are natives of the North Western Provinces, and 31 of Bengal.

Examinations will be held in the Medical College on the 1st and 3rd of April, to fill up existing vacancies in both classes, and to admit any number of free students who may be found qualified, and anxious to study Medicine.

\* Of these five are Mahomedans, four admitted during the past session from the Calcutta Madrassah.

The following is a tabular statement of the attendance of the pupils of the Medical College, during the Session 1846-47.

CLASS.	Number of Lectures given.	Number of Students attending.	Total present at all the lectures during the Session.	Do. absent during the Session.	Daily average.		REMARKS.
					Present.	Absent.	
Anatomy and Physiology } Demonstrations ...	124	31	3,430	414	27.66	3.33	The general attendance has been better than during the previous year. In this table are included all absent from every cause—much of the absenteeism was the result of sickness, and some from private leave for the performance of religious ceremonies, &c. Among those marked absent again, some were too late to have their names inserted in the roll which is called at the commencement of every lecture.
Practice of Medicine	80	38	2,765	275	34.56	3.43	
„ Surgery ...	104	38	3,589	363	34.50	3.49	
„ Midwifery ...	75	38	2,598	252	34.64	3.36	
Chemistry .....	96	31	2,759	217	28.73	2.26	
Botany .....	50	44	2,111	89	42.22	1.78	
Materia Medica .....	86	38	2,946	322	34.25	3.74	
Med. Jurisprudence	39	38	1,383	99	35.46	2.53	

The daily average attendance of the Military Class residing in the College was, .....101-68

Dissections.	Statement of the number of bodies dissected.
In November 1846, ... ..	105
„ December, ... ..	131
„ January 1847, . ... ..	92
„ February ... ..	86
„ March, ... ..	73
Total, ... ..	487

The cost of the Establishment from January to December 1846, was ... .. 53,025 12 3  
 The charge for Ceylon pupils,\* ... .. 3,359 10 9

The Contingent charges for the same period were as follows :

Chemical Department, ... ..	109 7 0
Museum and Dissecting ditto, ... ..	1,580 3 0
Medical College ditto, ... ..	3,558 11 9
Stipends to Students, ... ..	3,908 8 6
The allowance for books was ... ..	840 0 0
Total, Co.'s Rs. ... ..	66,382 5 3

\* Paid by the Government of Ceylon.

With reference to the report of the Examiner and Assessors upon the unfavourable results of the final examination of last year, the Council of the Medical College forwarded to Government the following explanation. The report to which it refers, is quoted in the margin for readier reference.

Explanatory report of the College Council upon the result of the final examination of 1845-46.

Mr. Forsyth reported as follows:—

“The final examinations of the students of the Medical College for the session 1845-46, having been brought to a close on the 31st ultimo, I have now the honor to forward, for submission to the Council of Education, the result, in a tabular form, showing that of the twelve candidates for the College degree who presented themselves for examination, seven only have been deemed, in the judgment of the assessors, to have fairly earned that honor.

“2d. For this result, and for the moderate degree of intelligence generally displayed in the course of the year’s examinations, the Council will no doubt have been prepared by the reports of the periodical examinations previously held by the professors of the institution.

“3d. In bringing under the notice of the Council, however, the fact that an unfavorable impression has been left on the minds of the assessors by the “result” of the present season, as contrasted with the degree of proficiency displayed on former occasions, it is proper to state that the falling off is ascribed, in a great measure, to the natural dullness, and probable want of ardour in the larger proportion of the students themselves; as the very successful examinations passed by a few of them have satisfied the assessors, that when the student is apt and diligent, the means of obtaining a good professional education are available at the Medical College.

“4th. Besides the caution which the above remarks would appear to suggest in selecting for studentships such only of the candidates as evince a competent familiarity with the language, through the medium of which they are to be taught, and who are remarkable for quickness of parts as far as that can be ascertained, it is my duty to bring under the notice of the Council the circumstance that the deficiency exhibited by so large a proportion of the candidates of the present session, has not appeared to the assessors to be so much in an imperfect acquaintance with the learning of their profession, as in their want of capacity in applying that learning to actual practice; and for this defect the

“With reference to the results of the late examination the College Council are of opinion that the falling off is more apparent than real, since two of the best students of the year, Mr. Naylor and Baboo Doorga Churn Banerjee, did not (from private reasons) present themselves for examination, and two of the pupils with Dr. Goodeve, would certainly have passed creditable examinations this year, had they not been thus unavoidably absent. Again, the examination itself was more extended than on any previous occasion, the subjects of Chemistry and Medical Jurisprudence having been separated from *Materia Medica*, and for the first time formed special matters of examination.

“With reference to the lads who have failed, the College Council have long been aware that they could not possibly have passed through such an ordeal as that to which the pupils of this Institution are subjected, and that they were naturally incapable of acquiring a pro-

best remedy, in the opinion of the assessors, would be the institution in the College of a more extended and more perfect system of clinical instruction, than appears to have obtained hitherto, and at the same time, the exaction from the students of a closer attendance in the dispensaries and wards of the hospital, where they ought to be employed regularly, under the House Surgeon, during a certain portion of their "curriculum" in performing all the minor operations of surgery; and in compounding and exhibiting, with their own hands, the medicines prescribed. In this way alone, it is believed, can the painful hesitation witnessed in so many instances during the late examination, be avoided in time to come, as well as the still more painful embarrassment and want of confidence in themselves, which must necessarily be betrayed during the first year or two of their employment in the active duties of their profession.

"5th. As the tabular statement so distinctly exhibits the relative merits of the candidates, it does not appear to be necessary that I should notice them severally here. I cannot, however, refrain from mentioning in terms of praise, the readiness, aptitude, and general intelligence displayed throughout these examinations by Doyalchund Bysack."

Colleges above referred to are armed with the power of excluding unqualified candidates from an ordeal which is of much less real importance and consequence than the final examination of a Medical College student.

"In regard to the important subject of clinical instruction, the College Council are of opinion, that it is as perfect as the present means at the disposal of the college will permit of, and this they are quite aware is in every way inadequate to the demands of so large a school. The pupils in rotation perform the duties of clinical clerks and dressers, and keep reports of cases, which are periodically submitted to the Council.

"The college dispensary is utterly inadequate to teach them all, or even a little of the compounding requisite, and the number of cases which the hospital wards are capable of containing, is too limited to afford an extended or complete field for clinical observations, more especially in the surgical department.

"Under these circumstances, the Council are unable to suggest any more complete means of providing instruction in the deficient departments, until the establishment of the Fever Hospital, or extension of the College in its various practical

professional education, both from inherent dullness and inaptitude, as well as from original defect of education.

"To avoid any recurrence of such palpable failures, the College Council beg earnestly to solicit, that the principle applied to the scholarship examinations of the Hindu and Hooghly Colleges, may be extended to those of the final students in the Medical College, viz. that the authorities of the Institution may be allowed to hold a preliminary examination, for the purpose of reporting to the Council, who are fit and who are not so, to present themselves for the college diplomas.

"The Principals of the

departments, shall enable them to do so with some prospect of success."

The wishes of the College Council were acceded to by Government, and accordingly a preliminary test examination was instituted, by the result of which one student was remanded to his studies; another was sent back to complete the duration and extent of study required, and a third who was sick and unable to attend, was on account of his previous good conduct and character, permitted to present himself before the Government Examiner.

In consequence of a great falling off during the last two years in the number and qualifications of the native pupils who present themselves for admission into the English class of the Medical College, an enquiry was instituted into the cause of the decrement referred to, when the following report was forwarded to Government, with a strong recommendation from the Council of Education that some means should be adopted to better the condition of the Sub-Assistant Surgeons, and hold out adequate inducements for young men of high attainments to study and follow the profession of Medicine.

It has been a subject of observation during the last two years, that the number and qualifications of the native candidates for admission to the English department of the Medical College have both been decreasing to such an extent as to demand an enquiry into their causes.

In 1845 twenty-three candidates presented themselves for examination, of whom eight were admitted and fifteen rejected—the latter being in general so grossly ignorant and unqualified, as effectually to prevent their being entertained.

At this time the standard of qualification for admission to the College was raised in consequence of its having been discovered that the great majority of students rejected at their final examinations, failed more from deficiency in general education, than in professional information, which was attributed to the then low standard of preliminary qualification required.

The following are the two standards referred to.

*Previous to 1845.*

"All candidates will be expected to possess a thorough knowledge of English, so as to be able to read, write, and enunciate it with fluency and facility. They must be able to analyze a passage in Milton's Paradise Lost, Robertson's Histories, or works of a similar classical standard, and be acquainted with Arithmetic as far as the rules of proportion."

*Subsequent to 1845.*

"All candidates will be expected to possess a thorough knowledge of English, so as to be able to read, write, and enunciate it with fluency and facility. They must be able to analyze a passage in Milton's Paradise Lost, Robertson's Histories, or works of a similar classical standard, and be acquainted with the elements of Arithmetic, Algebra, Geometry, and Natural Philosophy."

In 1846 again, nine candidates presented themselves, of whom two were admitted and seven rejected.

Upon making strict enquiry among those competent to give a correct opinion, the following have been ascertained to be the chief causes which have operated in preventing the entrance of the first class students of Government and other Institutions, into the Medical College.

1st. The great hopes held out by the Governor General's resolution of October 1844, of a higher and more profitable class of appointments in the judicial and other branches of the public service.

2dly. The great demand for young men of education in mercantile and other offices, where salaries can be obtained without the time and labor required in the acquisition of a profession.

3dly. The scale of remuneration fixed for Sub-Assistant Surgeons being lower, than can be at once obtained by our first class students in other positions, not requiring any of the sacrifices so distasteful to natives of Bengal, such as proceeding to distant stations, &c.

4thly. The length of time which generally elapses between obtaining their diplomas, and being employed.

As most of these are causes likely to be in operation for some time to come, the following appear to be the best means of removing the existing objections to the study of the Medical Profession.

1st. Increase of pay to Sub-Assistant Surgeons after specified periods of service: *e. g.* Sub-Assistant Surgeons of 10 years active service, to receive Company's Rupees 150 per mensem, after examination by special Committees to ascertain their continued fitness, and their having made good use of their time in acquiring additional practical information. After 20 years service Co.'s Rs. 200 per mensem, and after 30 years 300 per mensem, in each case to be preceded by a special examination, and the grades to be denominated 1st, 2d and 3d grade Sub-Assistant Surgeoncies, according to the scale of pay.

In cases of very distinguished merit, from drawing up valuable topographical and statistical reports; investigating the properties of, and introducing into practice efficient indigenous for European remedies; remarkable success in performing the great operations of Surgery, &c. &c., promotions to be made to the 2d and 1st grades, as the Government may deem deserved, without reference to the period of service of the individual.

Pensions to be granted upon the same terms as to other uncovenanted persons, viz.  $\frac{1}{3}$ d of the existing salary after 20, and  $\frac{1}{2}$  after 30 years of active service.

2dly. Attaching a Sub-Assistant Surgeon to each of the Deputy Magistracies of Bengal.

This would bring them into immediate contact with the people, enable them to be employed in every direction where epidemic diseases were existing, and to assist in all judicial enquiries involving medico-legal knowledge, a subject now taught to the pupils, and in which they are examined, before being presented with diplomas.

3dly. Appropriating one senior scholarship in every Government College, to be held for five years in the Medical College, subject to the reports of progress from that institution being such as to entitle it to be retained.

The subject is still under consideration.

In February last His Highness the Nuwab Nazim of Moorshedabad, accompanied by Mr. H. Torrens, visited the Institution, and after inspecting its various departments, placed at the disposal of the College Council the munificent sum of one thousand rupees, to be disbursed as that body might deem best calculated to advance the interests of the college.

Visit of H. H. the Nuwab Nazim.

It was accordingly suggested that as the college is amply and liberally supplied with prizes and other rewards by the Government, and as its Hospitals are also well provided for, the donation should be devoted to the purchase of class books, to be kept in the Library for the use of those pupils who are too poor to buy them for themselves. The works are to be on Surgery, Medicine, Chemistry, Botany, Materia Medica and Medical Jurisprudence:—the department of Midwifery having already been supplied with an excellent assortment of text books, from a generous and liberal donation of two hundred rupees by Baboo Ramanath Tagore.

Baboo Ramanath Tagore's donation.

During the past year the Council brought to the notice of Government the subject of prizes to the Medical College, which were previously chiefly obtained from private sources, and liable to an amount of fluctuation tending to defeat the object for which such rewards are bestowed, great encouragement being occasionally held out for proficiency in one department, while others equally important were entirely neglected.

Prizes.

Upon the recommendation of the Council, the Government was pleased to sanction a permanent and specific prize allowance of the nature and to the extent noted in the margin.\*

\* For the English class, nine gold and two silver medals—a clinical prize of books, and a pocket case for the best Surgeon's Dresser.

For the Military Class, a gold medal, a silver medal, and book prizes to the value of Rs. 80.

In addition to the above, certificates of honour were sanctioned similar in form and character to those of University College, London, for all pupils who should distinguish themselves in particular departments of study, without being entitled to medals. Exclusive prizes for particular orders of students were at the same time abolished, and all pupils, Hindu, Mahomedan, and Christian, allowed to compete on equal terms. The regulations for the award of these prizes and certificates are contained in Appendix D. to the present report.

In the annual volume of reports on public instruction in Bengal for 1844-45 a plan was published for improving the state of the European Subordinate Medical Department, with the objections of the Medical Board, and the reply to these objections by the Council.

The subject was referred to the Honorable Court of Directors, from which body the following extract of a military letter No. 103, dated 3rd November 1845, was communicated to the Council:

10. "The Medical Subordinates at your Presidency having no means of instruction provided for them beyond what can be furnished by the Surgeons in charge of Hospitals and by the superiors in the subordinate branch, all of whom have their own separate duties to discharge, it is to be apprehended that many of them are very deficient in the knowledge requisite to enable them to act with efficiency when called upon, as they occasionally are, to perform medical duties on their own judgment and responsibility. This defect has, we believe, been remedied at Madras by the establishment of a Medical School attached to the General Hospital at the Presidency, in which suitable instruction is given to medical apprentices who have previously served for not less than two years as pupils in European Hospitals, and who give promise of becoming efficient servants.

*Letter dated 18th June, No. 103.—* Transmit, with general approval, copies of correspondence, &c. relative to a plan drawn up by Dr. Goodeve, and recommended by the Medical College Council and the Council of Education, for affording a professional education at the Medical College to European lads who may be candidates for apprenticeships in the European Subordinate Medical Department of the Army, in view to the introduction into it of a body of well informed and educated practitioners, capable of discharging the subordinate as well as the higher and more responsible duties of the profession.

11. "This plan appears to us to be better calculated for the desired object than that suggested by the Council of the Medical College, which as involving what may be considered a college education, might very probably, as suggested by the Medical Board, have the effect of indisposing the pupils to their ordinary and indispensable duties in European Hospitals.

12. "We are desirous that you should procure from Madras, full information of the plan pursued there, and of its success; and that you should then in communication with the Medical Board and the Council of the Medical College, frame an arrangement for the education of medical apprentices to such an extent as will qualify them for their duties as Apothecaries, and as Stewards of European Hospitals.

13. "We concur in opinion with the Medical Board, that it is desirable to introduce in Bengal, the regulation which obtains at Madras, for subjecting Subordinate Medical Officers to a searching examination previous to promotion in the department."

Upon the above the following report was furnished by the Medical Board:

2d. "In furtherance of these instructions, and in conformity with the Honorable Court's favorable opinion of the system of educating Medical Subordinates at the Madras Presidency, derived from the periodical reports furnished by Medical Officers of Her Majesty's and the Hon'ble



Company's Service, which have been regularly sent to England, we placed ourselves in direct communication with the Medical Board at Madras, and have obtained full information regarding the mode of instruction there, and that degree of professional knowledge which is deemed necessary for the purpose of securing increased efficiency among the pupils selected for the Subordinate Medical Department.

3d. The existing system in Bengal, relating to admissions into the service, does not allow of an immediate adoption of the entire plan pursued at Madras, but the information we have received will enable us to frame a set of modified rules, suitable to present circumstances and the imperfect state of our subordinate establishment, which we feel assured will be productive of great benefit to the service.

4th. The first thing to be reformed is the principle of admission. At Madras the candidates are obliged to undergo a strict preliminary examination, and none are passed as apprentices who do not afford satisfactory proofs of possessing the required qualifications. In Bengal, on the contrary, nothing of the kind is exacted. One list of applicants for nomination to the Subordinate Department when vacancies occur is kept in this office, and another list is kept in the Adjutant General's Office, from both of which the nominations are made by His Excellency the Commander in Chief, but without any sort of preliminary examination as to capacity or acquirement. Some of them are only just able to write their names, and many are of so tender an age that, after appointment to an Hospital, it is often necessary to send them to the regimental school for a considerable period, to improve their reading. It would be superfluous to enlarge on the highly objectionable nature of such a practice, which has existed so long, and which we can say, from our own knowledge and experience, has proved most injurious to the interests of the public service.

5th. We are therefore induced strongly to recommend that no candidate for the Subordinate Medical Department should, in future, be admitted below 14 or above 18 years of age, and only under the following conditions.

*First.*—Each candidate to produce certificates of parentage and age, and satisfactory testimonials of good character, without which none will be eligible for examination.

*Second.*—All candidates to undergo a public examination before a Committee of Medical Officers; the course of examination to comprise,—English writing from dictation, simple arithmetic as far as Rule of three,—English generally, including Orthography, and the meaning of words, and colloquial knowledge of Hindoostanee.

*Third.*—The passed candidates to rank according to their degrees of merit reported by the examiners.

*Fourth.*—The number of vacancies to be notified in General Orders three months prior to the examinations, which will be held on the 15th of April and 15th of October each year.

6th. After admission to the School at Madras, the pupils are subjected to half yearly examinations, and those who are found careless or unlikely to profit by the instruction afforded, are discharged from the service, at once, and those only who creditably pass their final examination at the expiration of the period allotted for study (say 2 years) are promoted into the Subordinate Medical Department. With us it will be proper that such pupils should be sent to join the Hospitals of European Regiments, and there await their turn for promotion as Assistant Apothecaries according to their comparative merits, as ascertained by the registry of efficiency contained in our official records.

7th. We have before recommended, and the Honorable Court have signified their approbation of the recommendation, that a selection of studentships should be made from those apprentices who have already served two years in the department, and have given proofs of good conduct and readiness to qualify themselves for the efficient performance of their duties, and we have now the honor to submit the names of thirteen apprentices of about the required standing, whom the returns in our office show to be worthy of selection.

\* \* \* \* \*

8th. With respect to the degree of qualification to be imparted, it is expressly the Hon'ble Court's view, that what is called a college education is not required for medical subordinates; but merely medical instruction 'to such an extent as will qualify them for their duties as apothecaries and as stewards of European Hospitals.' There can be no question that a complete college education would utterly unfit them for their inferior, though important duties; refined and extended acquirements being incompatible with the grade which they occupy, and the special object of their nomination and employments.

9th. We would, therefore, on these grounds, submit that the course of instruction should be confined to a competent knowledge of *Materia Medica*, Pharmaceutical Chemistry, Anatomy, and most especially Clinical Medicine and Surgery; and we conceive that two years of diligent study at the Medical College will be sufficient for the full accomplishment of this purpose.

10th. The preceding paragraphs point out an important improvement in admitting apprentices of adequate proficiency to the service, and also the means of instruction to apprentices who have already served two years. But a large proportion still remain who have had no advantage of previous scholastic instruction, and who cannot be withdrawn from the hospitals for study, without public inconvenience. As the Honorable Court concur in opinion with us that it is desirable to introduce in Bengal 'the regulation which obtains at Madras for subjecting subordinate medical officers to a searching examination previous to promotion in the department,' we would recommend that no medical apprentice shall be promoted to the rank of assistant apothecary, and no assistant apothecary to the rank of apothecary, or steward, until he is reported qualified by a committee of Medical Officers assembled by His Excellency the Commander in Chief, at any of the stations of the army, or head quarters of the several divisions, as occasion may require. Respecting the extent to which the examination of those subordinates just alluded to, should be carried, the Medical Board in preparing the questions to be answered will be guided by the opportunities which the candidates may have enjoyed of acquiring professional knowledge, and under no circumstances should any individual be passed for the superior grade, unless found sufficiently qualified for every duty which from his position in the public service he may be actually required to perform.

11th. Should the above scheme, devised for the improvement of the subordinate Medical Establishment of this Presidency, meet with your Honor's approbation, the Council of the Medical College, whose concurrence and co-operation in every thing calculated for the promotion and advancement of science and the public good may be fully relied on, will no doubt liberally and zealously extend their sanction to such arrangements as may be necessary at the Medical College for the contemplated control and instruction of the individuals named in a preceding paragraph, and of others who may from time to time be admitted by government to the subordinate medical service."

To the above the Council of the Medical College replied, that after having maturely and deliberately considered the proposal of the Medical Board, they were of opinion—

“ That 16 years of age is the minimum at which pupils of the European Subordinate Medical Department should be admitted to the College, and that their serving in Hospitals for two years prior to this, is considered absolutely necessary, as they are to remain so short a time under instruction. Secondly—that the College Council should possess the privilege of re-examining the youths before they are admitted, in order to ascertain that they are really qualified to commence the study of medicine. Thirdly—that they should study Anatomy, Physiology, Chemistry, Materia Medica, and the Principles of Medicine, Surgery, and Midwifery, instead of Clinical Medicine and Surgery, as proposed by the Medical Board, the time they are to remain in the College being inadequate to admit of their doing so with profit and advantage, and it appearing essential that they should devote their attention to the elementary, instead of the practical branches of the profession, which they will have ample opportunities of becoming subsequently acquainted with, in the military and other hospitals to which they may be attached.

At the same time the College Council are of opinion that it would be far more advisable to extend the period of study to three years, and include the elementary subject of Botany, without which it is impossible to possess a correct knowledge of Materia Medica, so essential to the apothecary in particular.

The admission to the College should only be once a year, at the commencement of the session in June, otherwise the pupils would begin in the middle of some of the courses of lectures; an inexpedient and injurious practice.

Should the above views of the College Council not be coincided in, that body will be equally happy to carry out, to the best of their ability, the scheme of the Medical Board, and pledge themselves that no effort will be spared on their part to give it a full and impartial trial.”

The Medical Board adhered to their original plan, which was accordingly sanctioned by the Governor General, and directed to be acted upon experimentally for two or three years, when sufficient experience of its results will be obtained to enable the Government to judge of the expediency of raising still higher the standard of acquirement and of prolonging the period of study.

In the mean time, and as the lads will probably be sent to Calcutta by June next, the Council brought prominently to the notice of Government the following circumstances connected with the present state of the Medical College.

In the first place there is no accommodation within the college compound for lodging any more pupils, and it has already been mentioned in the public reports of the Institution, and is coincided in both by the Medical Board and the College Council, that the students must at once be placed under the immediate personal supervision of the resident authorities, and be subjected to the strictest discipline.

This can only be effected by building a special dwelling for their accommodation, as mentioned in the general report on Public Instruction for the year 1844-45, pp. 116 and 117.

The next point for the consideration of Government is the utter inadequacy of the present hospital accommodations of the college to afford the requisite amount of clinical instruction, even to the pupils now in the Institution.

The Medical Board in their plan have directed that the pupils shall be taught clinical medicine and surgery in the College Hospital. At present this would be impossible, nor would it be practicable to teach them the practical pharmacy and compounding required, for a similar reason—the absence of means.

The messing of these lads would also require to be carefully and properly regulated, and render necessary the entertainment of a steady European Non-Commissioned Officer, who should constantly reside in the same building with them, and be held responsible for their conduct at such times as they might not be engaged in class or hospital duties. All such matters will, of necessity, render it advisable to draw up a special set of rules for the instruction and guidance of these youths.

The Council beg, therefore, again to solicit the attention of Government to the subject of the extension of the Medical College.

The sum now accumulated for building a Fever Hospital is amply adequate for that purpose, and the departure of Surgeon Egerton for Europe, will enable the Government to consider the question of attaching an Ophthalmic Hospital to the Medical College, in which no practical means at present exist of teaching the pupils the nature and treatment of a class of diseases most abundant and destructive in all parts of India; the Council are therefore most anxious to receive the decision of Government upon all these points, indirectly connected with the scheme of study for the European Subordinate Medical Department, approved of by the Medical Board and by the Right Hon'ble the Governor General of India.

The Council of Education have continued since the publication of the last annual report to receive frequent and gratifying communications from Dr. Goodeve, respecting the conduct and progress of the pupils studying under his charge in England, which appear to have been in every way most satisfactory, and to reflect the greatest credit upon the industry and ability of the students, as well as upon the unre-

Progress of pupils  
in England.

mitting care and zeal of their Superintendent, to whom the best thanks of the Council are again due for the excellent manner in which his responsible duty has been performed.

The second and third half-yearly reports of the Dean of the Faculty of Medicine of University College, are published for general information.

“In making this second half-yearly report on the conduct and progress of our Indian Students for the information of the Council of Education of Bengal, I am happy to be enabled to speak in the same terms of un-

mixed commendation.

Their regularity and industry in the prosecution of their studies has been most exemplary; and as we anticipated from the correctness and intelligence of their answers at the weekly examinations, they have gained distinctions and prizes at the sessional examination for honors at the conclusion of the winter term.

The following are the honors thus gained :—

- |   |  |
|---|--|
| 1. First silver medal in Chemistry,.....          | } Awarded to Bholonath Bose.             |
| 2. Second certificate for a Chemical Essay, ..... |  |
| 3. First silver medal in Materia Medica, ...      |  |
| 1. Gold medal in Comparative Anatomy, ...         | } Awarded to Sùraj Coommar Chuckerbutty. |
| 2. Seventh certificate in Anatomy, .....          |  |
| 3. Twelfth certificate in Physiology,.....        |  |
| 1. Seventh certificate in Medicine, .....         | } Awarded to Gopal Chundra Seal.         |
| 2. Ninth certificate in Physiology, .....         |  |
| 1. Seventh certificate in Midwifery, .....        | } Awarded to Dwarkanath Bose.            |

When it is considered that the competition was conducted by written answers within a *limited time* to questions in a language in which our Eastern pupils could not be so familiar as the other students, and therefore could not be so quick or exact in expressing themselves, these results must be pronounced to be very creditable to them.

It is further very pleasing to observe the propriety of their general conduct, and the perfect harmony and good feeling which subsist between them and the other students. The professors feel that on these points as well as in the success of their studies, our Indian students owe much to your\* very able and judicious superintendence.

“The conduct and career of our Indian students continue to realize the high expectations which we had formed of them before the date of my last report.

Third report of Dr. Williams.

In the competition at the close of the summer term the gold medal which is the first prize in the science class of Botany, was gained by Bholonath Bose, and the fifth certificate by Sùraj Coommar Chuckerbutty. In this class there was, as usual, much competition.

During the present session our Asiatic friends have advanced to the more practical departments of study, and I am happy to bear strong testimony to their diligence. Gopal is performing the duties of a Clinical Clerkship under me with great punctuality and intelligence, and already shews much knowledge of disease in the manner in which he reports the cases of the patients. Both he and Bholonath Bose are diligent atten-

\* Dr. Goodeve's.

dants at my lectures on Medicine; and from the correctness of their answers at the weekly examinations, they give the most satisfactory evidence of their progress in this difficult and extensive subject.

If they retain their health I expect that they will distinguish themselves among our students even more than during the last Session."

For the marked and uniform kindness of the Professors of University College, the grateful acknowledgments of the Council of Education are due, and thus publicly returned.

The accompanying extracts from Professor Goodeve's own detailed reports, will be read with much interest:

Extracts from Dr. Goodeve's second report to the Hon'ble Court of Directors. "It will be seen that throughout the past session their conduct has been generally marked by great propriety and most determined industry, and that they have shown ample evidence of the successful result of their labors in the gratifying position they assumed at the closing examination.

The Gold Medal in Comparative Anatomy was gained by SURAJ COOMAR CHUCKERBUTTY in replies to a series of questions which Professor Grant declared to be even more difficult and required a more complete knowledge of the subject to answer, than he had given to his class during the last ten years. He also received high certificates of proficiency in Anatomy and in Physiology. Subsequently to this he has obtained the Silver Medal (the only prize) in Zoology,—this prize is not mentioned by Dr. Williams, because it has not yet been officially awarded, but I am authorised to state that he is to receive this distinction.

"BHOLOMATH BOSE was certainly no less distinguished than Chuckerbutty. He obtained the second prize, viz., the first silver medal in Chemistry, also the second prize, viz., the first silver medal in Materia Medica, and the second certificate for a Chemical essay. There was no direct prize awarded to any one in the latter contest, though perhaps the most difficult part of the examination. Dr. Graham (the Chemical Professor) stated that this essay was one of the most ingenious treatises upon the subject he had ever read, and that he had very great reluctance in awarding the first certificate to the more successful competitor,—that Bholonath would certainly have obtained the highest rank in last year's examination, but on this occasion there was a young man in the class of extraordinary merit, who obtained the first prize in almost every other department. The essay was written upon 'The constitution of Ammonia,' a very difficult chemical problem, and several scientific gentlemen who have seen Bholonath's production have, as well as myself, been astonished at the research, the ingenuity of argument, and the elegance of language which it displays. I can testify to its being in every respect the production of his own unaided labor. The same reason which prevented this young man from obtaining the first prize on this occasion, operated to place him second in the chemical examination, viz., the unusual superiority of his rival. Professor Graham stated this publicly at the distribution of prizes, and spoke in very high terms of the excellence of Bholonath's replies.

"He has for the present exclusively devoted himself to his professional studies with the intention of passing the first examination for Bachelor of Medicine at the London University in August; certainly the most difficult medical examination in Great Britain if not in Europe, and requiring the undivided attention of those who wish to distinguish themselves in the trial."

"GOPAL CHUNDRAS SEAL obtained high certificates in Practice of Medicine and in Physiology.

"He too is studying most earnestly to prepare himself for the London University examination in August.

"With reference to this examination, in justice to Chuckerbutty I should mention that he does not go up with the rest, because from his age and length of study he is not yet admissible as a candidate, though in other respects he is perfectly qualified.

"Dwarkanath Bose obtained a certificate in Midwifery.

"This is the first occasion on which the young Indians have been brought fairly into competition with English students, and it is very gratifying to observe that they have displayed their abilities and power of studying to such advantage in the contest as to astonish with their success the most sanguine of their friends.

"In a few weeks the College vacation will commence, and I have given permission to Chuckerbutty during that period to accompany his invaluable friend Professor Grant to Germany, where I have no doubt the former will benefit as greatly as he did last year at Paris under the same favorable auspices; the other three I propose to take with me into Scotland, if I can make the necessary arrangements for the purpose, and they should succeed in passing the examination in August, about which they are so anxious.

"This report I trust shows that any expectations of the successful career of these young men in England at first formed have been fairly sustained by their conduct during the last half year, and that it is reasonable to believe that they will amply fulfil the objects for which they have been sent to Europe; that at any rate they will prove striking examples to their countrymen of what they may accomplish by talent and perseverance and good conduct when opportunity for exercising these qualities is afforded them.

"Since making his report I have received a communication on the subject of Chuckerbutty's medal from Professor Grant, which I have much pleasure in submitting to the Honorable Court. It appears that Chuckerbutty's replies to the Zoological questions were so superior that Dr. Grant wrote the following letter to the Council of the University, recommending that a gold medal be substituted for a silver one, to indicate in a more marked degree the value of the young man's exertions.

*"To the Secretary of the Council of University College, London.*

MY DEAR SIR,—“From the transcendent excellence of the written replies given by the successful candidate this session in the Zoological competition, and from the great ability with which the prize has been contested (solely by Gold Medallists) on this occasion, I feel strongly induced to solicit the Council to award a gold medal instead of the usual silver medal, as the sole prize in the class of Zoology, at the approaching distribution of prizes in the faculty of arts.

“I remain, &c.,

“ROBERT E. GRANT.”

“In reply to this letter the Council of University College stated, that they considered any change in the established prizes would form an inconvenient precedent, and declined to comply with the Professor's request. This testimony from so distinguished a Naturalist as Dr. Grant is, however, far more valuable to Chuckerbutty than any increase in the intrinsic worth of the medal might have been to him.”

“ Since my last communication upon this subject, some important steps have been taken in the professional education of my pupils—1st, Dwarkanath Bose, Bholonath Bose and Gopal Chunder Seal, have obtained the Diploma of the College of Surgeons. The examination took place on the 27th July. After it was concluded, the President (Mr. Lawrence,) in the name of the Board of Examiners, complimented them highly upon the very satisfactory manner in which they had passed the ordeal. He stated that no favor whatever had been shewn to them, the questions having been perhaps more searching than usual, while the replies bore very favorable comparison with those of the great bulk of English students submitted to the same test.

Extracts from Dr. Goodeve's third report, dated December 1846.

“ This is the first occasion upon which any native of India has passed college examinations in Europe held for admission of students to degrees of any description. It is the first occasion on which they have had an opportunity of showing *publicly* their capacity for acquiring the sciences and professional knowledge of the Western World, and that in such contests they are equal to their European fellow subjects. To me it has been a source of unbounded gratification, and to every friend of education in India it must be matter of signal triumph and encouragement.

“ The next event I have to report is, if possible, still more creditable to the young men whom it concerns.

“ Bholonath Bose and Gopal Chunder Seal ambitious of further distinction, and not satisfied with the College of Surgeons' Diploma only, though it is sufficient for all ordinary professional purposes, have passed the first examination for the degree of Bachelor of Medicine at the London University, the most difficult medical examination in Europe. This commenced on the 3d August, and lasted four days, during six hours of each day. Part of the examination is conducted by means of printed questions, the replies to which are written in the presence of the examiners, and without the possibility of the Students obtaining assistance from books or communication with others, partly by *vivá voce* examinations and practical demonstrations in the Laboratory and Dissecting-room. The Students are arranged in two classes, according to the value of their replies. On this occasion there were 30 candidates, and both my pupils were placed in the first rank.

“ This entitled them to contend for honors, and in this second and more difficult ordeal, Bholonath and Gopal obtained certificates, and received the warmest approbation of the examiners. Nothing can be more fair than the mode of conducting the examination, the same printed questions are given to all, the value of the replies being subsequently judged by the examiners without knowing whose answers they are reading.

“ Thus again did my pupils greatly distinguish themselves in most honorable competition with their European fellow-students under peculiarly difficult circumstances, for besides the well-known severity of the trial, they laboured under the disadvantages of expressing themselves in a foreign language, no trifling impediment when writing under the excitement of so important an occasion, and within a very limited space of time.

“ Besides gaining these public honors Bholonath Bose has again obtained college distinction, the first prize, viz. the Gold Medal in Botany. This success he acquired in the midst of his anxiety, and the intense study necessary to prepare for the examinations for his degree, difficulties which would have deterred most young men from making the attempt. Bholonath has also made considerable progress in Latin.



“Gopal has chiefly devoted himself to Hospital practice since the commencement of this session. He has been elected one of Dr. Williams's Clinical Clerks, a most valuable opportunity for studying disease, and is constantly engaged in the wards of the Hospital in examining and reporting upon the patients under his care, at the same time as far as his time will permit, he continues to pursue the more theoretical part of his studies.

“Dwarkanath Bose did not consider himself qualified to attempt the University examination, though he was equally successful with his countrymen at the College of Surgeons. He has subsequently been attending the Surgical practice of the Hospitals regularly, and has had the charge of several Midwifery patients under the direction of Professor Murphy, who speaks very highly of him.

“Sooraj Coomar Chuckerbutty, from deficiency of age and standing in the profession, is not yet eligible for examination at either of the Colleges, but when the time arrives for his doing so, I am confident that he will at any rate be equally successful with his countrymen, if he does not surpass them.

“He has acquired an excellent knowledge of German during his short stay in Prussia, and he is now able to read with facility Latin, Greek and French, the latter and the German language he speaks easily; he has also advanced much in English composition, a subject on which he was at first somewhat deficient.

“The health of all the young men has continued excellent, and though towards the end of the last session they were rather exhausted by hard work and mental anxiety on the subject of their examination, the opportunity for travelling afforded by the college recess completely restored them to vigor and energy.

“During the vacation Soorjee again accompanied his kind friend Professor Grant to the continent.

“They went on this occasion by way of Belgium up the Rhine to Mayence, and thence across through Frankfort and Leipsic to Berlin. In the latter city they remained a month, chiefly occupied in studying the magnificent Museums of Natural History of that University. They returned through Hanover, Brunswick and Cashel, visiting several important and interesting places in their route, amongst others the laboratory of Professor Liebig at Giessen. Besides adding greatly to his stock of general knowledge and his acquirements in Natural History, by this interesting journey, Soorjee applied himself so closely to the study of the German language that he is now able, as I have mentioned above, to read it with great facility and to converse in it very intelligibly. The two most interesting and intellectual countries of Europe,—France and Germany—have thus been visited with great profit by this excellent young man.

“The other students accompanied me to Scotland. They remained upwards of a month in Edinburgh, during which they frequently visited the University, Museum, Hospitals, and Botanical Gardens, and all places of interest in the neighbourhood—they made excursions also to Glasgow, Dundee and Arbroath, and the Western Highlands. They were very much gratified with the magnificent scenery of the latter, and the interesting manufactures of the former. They received great kindness and civility from every one whom they met, more especially from Professors Christison, Miller and Allan Thompson of Edinburgh, to whom we are all much indebted for their assistance and unremitting attention. We returned by way of Liverpool, Manchester, and Birmingham, stopping at each town to examine

the more important manufactories and objects of interest. This tour occupied rather more than six weeks, and I trust that it has been very advantageous to my pupils. They have had an opportunity of witnessing under very favorable circumstances the different aspects of scenery, of people and of society which are met with in distant parts of Britain, of seeing a very large portion of the country and studying the more important manufactories. They have also made some very valuable acquaintances amongst the distinguished professional men in Scotland, and in every respect their ideas have been enlarged and their minds benefited. I only regret that my funds and our time did not permit my extending the journey through some portion of Ireland on our return from Scotland.

"The time is now fast approaching when we should prepare to return to India according to the terms of the Hon'ble Court's letter of the 10th July 1845, sanctioning the expedition which I have the honor to superintend. Should it still be deemed advisable that we comply with this order, I hope that the Government will not consider the experiment to be unsuccessful or useless. I appeal with confidence to the result of my pupils' labors, to their conduct and well being in every respect as proofs that the undertaking has at least accomplished all that could in its present stage be expected from it. Of its future influence upon the advancement of civilization in India subsequent events alone can determine, but I confess my own very sanguine anticipations that so favorable a commencement must be productive of very great future advantage.

"In referring to this subject I am, however, induced respectfully to submit to the consideration of Government the propriety of carrying the measure still further towards completion, and by permitting us to continue another year in this country more fully to develop the utility of the undertaking. The advantage of such an indulgence to the students will be incalculable. Besides the increased opportunities for professional improvement thus afforded to them which they are so thoroughly prepared to avail themselves of, and which at this advanced period of their education are more than ever important to them, I need only allude to the influence which a protracted sojourn in the intellectual atmosphere of England must exercise in the general development of their minds, as well as its powerful effects in a moral sense. In one particular point with reference to their past labors, the proposed extension of time is of great consequence in completing their professional studies. The examination which I have alluded to above for the degree of M. B. in the London University and the subsequent honor of Doctor of Medicine is but the first of two ordeals necessary to be passed through by the candidate for the degree in question. A fixed time is also required to elapse between each, in order that the student may attend certain Lectures and Hospitals. The second examination in the case of my pupils cannot be held till November next, it is equally severe with the first, but I have no doubt of their passing it with equal honor. Unless this opportunity be given them by a protracted residence in England, they will have thrown away all their previous labor and anxiety to obtain a distinction so much coveted by every one, and so peculiarly desirable for the future position of these young men in India, as the distinctive mark of what their energy and capacity enabled them to accomplish during their professional studies in Europe."

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One of the pupils mentioned above, Dwarkanath Bose, has recently returned to India, and been recommended to

Government for employment in the Anatomical Department of the Medical College, for which his particular acquirements peculiarly fit him.

In September last, Mr. H. Piddington, Coroner of Calcutta, proposed that two pupils of the class of Medical Jurisprudence should attend the Police Surgeon in rotation, to assist him in making judicial post mortem examinations at the Medical College; and also that preparations taken from all medico-legal cases of interest, should be preserved for the Museum of the College. Mr. Piddington's proposal was approved of, and the best thanks of the Council were returned to him, and to Mr. Maxton, the Police Surgeon, for their desire to advance the interests of the College. Many cases of high scientific interest occur, which will enable the pupils to acquire a valuable fund of experience in such matters, and teach them the proper manner of conducting judicial post mortem examinations in criminal cases.

In consequence of the increased demand for the services of native doctors, created by the operations of the army in the field, and by the augmentation of the native army, as well as the difficulty constantly experienced of securing the services of suitably qualified persons, the Medical Board recommended an addition of at least fifty pupils to the strength of the Military Class. Upon this the Council of Education was consulted as to the number of additional pupils that could conveniently be accommodated at the Medical College, to which it was replied that there is not only no available space for the location of a single extra student, but no means of adding to the buildings at present in the compound, in which the existing hundred pupils are crowded into a space barely capable of accommodating them; which is damp, ill ventilated, and not well adapted for the permanent residence of any up-country lads. It is only by the most watchful care, superintendence, and occasional thorough cleansing and white-washing that it has been preserved in a healthy state.

The position of the College itself, although central and *per se* well situated, is very ineligible for such an Institution, it being closely surrounded by densely peopled, dirty, ill-drained bazars in every direction, and the ground in its immediate vicinity being so expensive, (rupees 500 a cottah) as to render it difficult to extend the premises to the extent required by its increased and increasing growth and importance.

There are nearly 125 students residing within the compound who have no place of recreation within the walls, or nearer

than the maidan at the end of the Chowringhee road. A gymnasium, so essential for their health, and so useful in encouraging a manly and rational spirit of rivalry and enjoyment between all classes of students, was sanctioned by Government some time since, but the Council have been unable to find a local habitation for it. An ample parade ground and gymnasium would not only tend to preserve and improve the health of the students, but render them less liable to fall victims to the vices and temptations of a large city like Calcutta. As this is the only College in India where native students are subjected to the in-door training and discipline considered of so much importance in Europe, the Council are of opinion that its efficiency would be much increased by the means being afforded to the pupils of acquiring a taste for the moral and manly amusements of Europe, instead of the low vices and disreputable habits of the great bulk of the native community.

Under these circumstances, and before the building of the Fever Hospital will render the future removal of the College from its present site impossible, the Council beg to bring the above-mentioned subject to the prominent notice of Government, in the hope that some means may be devised of removing the causes of inefficiency under which the institution at present labors.

In consequence of the foregoing report, the Civil Architect was directed through the Military Board, to draw up a plan for a new Medical College. Major Goodwyn applied to the Council for a specification of the exact nature and extent of the buildings likely to be required, upon which a communication was addressed to Government, of which the following extract contains the nature and purport.

“The Council do not feel authorized to afford such detailed information without the express sanction of Government, as it will involve several important considerations connected with the present state and probable future wants of the Medical College, especially as to whether it is the intention of Government to afford instruction to the European subordinate Medical Establishment to the extent intimated in the despatch of the Hon’ble Court of Directors upon the subject—and also, as to whether there is any probability of increased hospital accommodation, in addition to the Fever Hospital and present Male and Female Hospitals of the College, being afforded, such as attaching an Eye Infirmary or Vaccine Establishment to the institution, in which they would be of the greatest importance in every point of view, the great and

Proposed new Medical College.

almost only radical defect at present existing, being inadequacy of clinical means of instruction to an extent which is productive of much injury to the cause of medical education.

Another circumstance of importance is, as to how far the Government may be inclined to encourage the Native Students of the English class to live in the College, and to provide suitable accommodation for them. The whole system of Education in India will necessarily be incomplete, until pupils are brought under the internal control and management considered so essential in Europe, to form the habits, improve the morals, and give a tone to the manners of youth at an age when impressions produce a lasting effect, and exert a beneficial or prejudicial influence upon the future career of the individual, in proportion to the good or evil training to which he may have been subjected. This is considered one of the most essential and important features in the normal training of teachers in the schools of Germany, Holland, Switzerland, France, and now, although to a more limited extent, of Great Britain.

Its effects upon the natives of India would be immeasurably greater than upon the inhabitants of any European country, for reasons which must be obvious to all acquainted with the social habits of the people.

The Native Medical Student in his own home, is exposed to every influence resulting from ignorance, superstition, the prejudices of caste, and similar means of weakening the effects of the intellectual and moral training which he is undergoing in our schools and colleges. His friends and relations are for the most part incapable of aiding or sympathizing with him in his scholastic pursuits, their conversation, manners, and morals are not such as are likely to improve or elevate him in the social scale, his books and studies are therefore laid aside until he can resume them under less unfavorable circumstances, and in the more congenial society of his fellow students."

Major Goodwyn is understood to have prepared and submitted to Government a suitable design for the purposes required, which is still under consideration.

The following is a specification of the new Fever Hospital Funds which have accumulated since the publication of the last annual report.

Fever Hospital.			
Amount of subscriptions and interest published in the last report, .....	35,208	2	11
Amount of subscriptions realized since, .....	2,863	0	0
Interest from various sources of investment, .....	2,472	15	1
Total,...	40,544	2	0

Amount invested in Company's new 5 per cent. Loan,	38,500	0	0
Amount lent upon interest of 6 per cent., .....	1,800	0	0
Ditto in the Union Bank,.....	66	3	9
Ditto expended in levelling the ground presented by Baboo Mutty Loll Seal, lithographing 400 receipts and 500 circulars, &c. ....	177	14	3
Total,.....	40,544	2	0

The erection of the Fever Hospital has been delayed by the general proposal of removing the College itself. Should this be found impracticable, the Council trust that the extension of the institution in its present position and building of the Fever Hospital will be sanctioned by the Government at an early period.

The following tabular statement exhibits the state of the Library. Library during the past session :

Number of volumes in the Library on the 1st January 1846,	4234
Added during the year,.....	81
Total.....	4315
Lent, .....	766
	3549
Missing, .....	28
Number of Works in store, .....	709
Ditto of Volumes ditto,.....	3521
	3954

Upon the Out-door Dispensary Mr. Daly, the Superintendent, reported that

“ During the past year there have been 30 senior students of the Military Class employed at the out-door dispensary for an average period of four months each, performing in turn the duties of clinical clerk and dresser, according to the plan adopted at the commencement of the preceding year, an arrangement which I have found to answer very well, as it ensured more order and regularity in the business of the dispensary, and enabled the students to give their undivided attention to the particular work assigned them with much more advantage than could possibly be expected from the performance of mixed duties in a large dispensary, with a daily average of 150 patients. The dressers were required to prepare the dressings with their own hands, and to perform the various minor operations required for the relief of surgical patients—these principally consisted of bleeding, cupping, bandaging, dressing ulcers, putting up fractures, the extraction of teeth, tapping, passing the catheter, and the occasional reduction of dislocations. While the dressers were engaged in these particular duties in the surgical department of the dispensary, the clinical clerks were employed in the preparation of medicines, and the entry of cases in their note books; at the conclusion of the day's work these cases were read over and made the subject of a short clinical lecture on the nature and treatment of the several diseases noted, in strict conformity with the practice of our Hospitals; these journals also contain a copy of the Hospital Formulæ, which together with the variety of cases recorded in each, will it is hoped render them

useful books of reference to the students hereafter, should they ever happen to be thrown upon their own resources.

In addition to the course of practical instruction thus afforded at the out-door dispensary, the students have been kept in regular attendance at the wards of the Hospital during the visiting hours of the Professors of Surgery and Medicine, independent of their usual tour of duty as dispensers and dressers every two months according to the roster.

Of the 30 students above referred to, 2 died during the year, 3 were discharged, and 25 have been sent up for final examination, and passed as duly qualified for the public service.

The general conduct of these lads during the year has been excellent; their attention and diligence have been throughout most praiseworthy, and in point of qualification, I consider the majority of them superior to any that have ever left the college. I would gladly make special mention of several whose good conduct and assiduity has been particularly conspicuous during the year, but as the individual merits of every student in the class are already well known to the college authorities, I feel satisfied that the most deserving will be suitably noticed on the proper occasion."

The general conduct of the native pupils of the English Class has been most praiseworthy during the past Session, not a single case of any kind of misconduct having been reported to the college authorities. Their attendance at lecture has been regular, and their demeanour upon all occasions quiet, orderly, and unobjectionable.

The Military Class continues to maintain the good character it has already gained, but one instance of partial insubordination having occurred, which was quelled at once without any difficulty, and which originated in the misconduct of and erroneous notion entertained of his duties by a subordinate officer attached to the institution. A few pupils of irregular habits were dismissed for repeated absence without leave, the conduct of the remainder has been, with the exception above noted, in every way most creditable.

The following communication from Sir J. Emerson Tennant, Secretary to the Government of Ceylon, addressed to the Supreme Government, was submitted to the Council for report:

"I am directed by the Governor to beg that you will make known to the Right Hon'ble the Governor General in Council, that His Excellency has learned with much regret, that some of the natives of Ceylon who had been admitted as students at the Medical School in Calcutta, have unfortunately been misled into habits of intemperance and other vicious irregularities, which in many instances have entirely destroyed their usefulness on their return to the Colony. His Excellency is desirous of obtaining the co-operation of the authorities at Calcutta, in endeavouring to apply a remedy to an evil so fatal to the important object in view, by adopting further measures for placing the Ceylon Students under a stricter system of discipline and surveillance on their arrival in Calcutta

His Excellency is not sufficiently informed as to the economy and internal government of the Medical Institution at Calcutta to be able confidently to suggest an expedient in immediate connection with them; but it occurs to him, that were the heads of the College to sanction the appointment of a superintendent responsible to themselves or to the local Government, it would be productive of great moral advantage to the youths who are now resorting to them for instruction."

"His Excellency is disposed to think that a retired Military Officer of the Company's Service, might with good effect be nominated to receive these youths on their arrival, to conduct them to the place assigned for their residence, to superintend their mess, and enforce a system of orderly conduct, abstinence from excesses, and a punctual return at suitable hours to their proper house.

"His Excellency will be prepared to pay all reasonable expenses attendant on the enforcement of such a system; and the issue or withholding of some proportion of the students' pay and allowances, would operate as an adequate check in aid of discipline.

"I am likewise instructed by His Excellency to acquaint you for the information of the Right Hon'ble the Governor General in Council, that an increased demand for Medical Assistants has recently been experienced in this Island to an unprecedented extent, and it is just possible that it may ere long be in excess of the means at the disposal of the Governor to supply qualified persons when called upon. His Excellency is therefore anxious to be informed whether a number of Medical Assistants, say from 10 to 15, might be disposed to volunteer their services for this Colony, if required, and whether the Government of Bengal would sanction their proceeding hither on such an emergency on salaries equal to those to which they are entitled in Bengal. The salaries paid in this colony to such persons are as follows:

"The third class commence with £110 per annum, and are eligible on recommendation of the chief medical officer to the second class with a salary of £150, and three years service in the second class, entitles to promotion to the first, with an income of £200 per annum."

To this the Council replied, that the Ceylon pupils at present reside in a separate building within the college compound, and are superintended by the Secretary to the College, who resides near them, and is assisted in this duty by the House Surgeon and Staff Serjeant. The special regulations to which they are subjected, are contained in the Medical College rules.

Although every means are taken to prevent irregularities, to enforce the keeping of proper hours, and to avoid the contamination of bad society, it is impossible amidst the temptations and vices of a large city like Calcutta, entirely to prevent their occurrence.

The Council, therefore, coincide in the view expressed in the letter of the Secretary to the Ceylon Government, that it would be extremely desirable to have an officer resident in the same building with them, whose sole duty should be the control and superintendence of the domestic economy of the Ceylon pupils. It is believed that the services of such a



person could be obtained for Company's Rupees 300 per mensem, with quarters and messing allowance; and by his constant presence, advice, example, and authority, that all bad habits would be effectually checked, and the students be improved in a corresponding degree in morality, decorum, and general propriety of conduct.

At the same time, the Council deem it but just towards the present pupils to state, that as a body they are much superior to their predecessors in all these respects.

The Council are of opinion, that their residence should be either within the college compound, or as near to it as possible for the benefit of Hospital attendance, and of their attending to their various duties and studies with as little exposure to the sun and weather as possible. For these purposes, the present building is not adapted to furnish accommodation for more than 17 pupils, and has no quarters for a superintendent.

The proposals above-mentioned were not adopted by the Government of Ceylon, as the revenues of that colony did not then warrant so large an expenditure for those purposes.

The conduct and character of the Ceylon students during the past session have, with two or three exceptions, been satisfactory. One individual has, however, been removed for repeated misconduct, and another been threatened with a similar fate, should he not amend. The unfortunate and culpable facility with which some of the petty tradesmen in Calcutta allow these pupils a large amount of credit, and supply them with spirits, has been the chief source of the misconduct referred to in the two students before-mentioned.

The following preparations were added to the Museum during the past year.

	Medical pathological,.....	54
	Surgical ditto,.....	39
Museum.	Anatomical (human),.....	74
	Ditto (comparative), .....	24
	Urinary Calculi,.....	68
		<hr/> 259

Many valuable pathological preparations were again received from H. M.'s Medical Officers in the Madras command.

In consequence of the great extent of the Museum, and its requiring the undivided care and attention of a special assistant, that office was re-established, and the former incumbent appointed.

The final examinations of the English Department were conducted by Surgeon J. Forsyth, the Government Examiner, assisted by the following gentlemen as assessors :

Senior Surgeon S. Nicolson, F. R. C. S.  
Senior Surgeon J. Grant, Apothecary General.  
Surgeon R. M. M. Thomson, M. D., Marine Surgeon.  
Surgeon A. Chalmers, M. D., Presidency Surgeon.  
Surgeon Charles Llewellyn, Garrison Surgeon.  
Surgeon H. Chapman, Presidency Surgeon.  
Assistant Surgeon F. P. Strong, Surgeon, 24-Pergunnahs.

The candidates for diplomas are enumerated in the accompanying tabular list.

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*List of Students for final Examination in the Medical College, Sessions 1846-47.*

Nos.	Names.	Age	Caste.	Date of Admission.	No. of times absent since their admission.	Character.	Remarks.
1	Chunder Coomar Moitry	22	Brahmin --	1st January 1842	11 days	Good	{ Clinical Clerk 8 months, and Dresser 3 months, gained a gold Circlet of Merit and a prize in Medical Jurisprudence. Ditto 8 do., do. 3 do., do. a gold Circlet of Merit. Ditto 8 do., do. 3 do., do. money prize Rupees 50. Ditto 9 do., do. 3 do. Ditto 23 do., do. 6 do., gained a Circlet of Merit, money prize Rupees 190, Clinical prize, 2 gold Medals and the Goodeve Scholarship. Ditto 8 do., do. 3 do. Ditto 8 do., do. 3 do. Ditto 14 do., do. 5 do. Ditto 8 do., do. 3 do. Ditto 10 do., do. 3 do. Ditto 8 do., do. 3 do. Ditto 8 do., do. 6 do. Ditto 8 do., do. 3 do. Ditto 10 do., do. 6 do. Ditto 12 do., do. 6 do. Ditto 12 do., do. 6 do.
2	Buddinath Bromo	21	Writer Caste	Ditto	8	ditto	
3	Nundololl Gungooly	22	Brahmin --	Ditto	20	ditto	
4	Sussibhooshun Seal	21	Weaver ---	Ditto	23	Fair	
5	Tumeez Khan	21	Mahomedan	Ditto	None	Very good	
6	Kallynath Mozendar	23	Brahmin --	Ditto	5 days	Fair,	
7	Kedarnath Ghose	21	Writer Caste	Ditto	40	Tolerably fair	
8	Jadub Chunder Ghose	23	Ditto ---	Ditto	1	Fair	
9	Tarra Chund Banerjee	23	Brahmin --	Ditto	5	Good	
10	Kedarnath Day	21	Writer Caste	Ditto	7	Fair	
11	Nilmaudhub Mookerjee	19	Brahmin --	Ditto	13	ditto	
12	Ramsounder Ghose	21	Writer Caste	Ditto	13	ditto	
13	Omes Chunder Bose	22	Ditto ---	Ditto	39	ditto	
14	S. Forbes	21	Christian --	22d August 1842	10	ditto	
15	F. Garvin	20	Ditto ---	Ditto	34	Good	
16	J. Sheetz	34	Ditto ---	Ditto		Very good	

FRED. J. MOUAT, M. D., Secretary.

*Medical College, the 15th March, 1847.*

Government Examiner's report.

Subjoined is the Government Examiner's report, forwarding the tabular statement of results.

"A perusal of the table, which I have the honor to forward herewith, for submission to the Council of Education, shewing the result of the final examination of the first class students of the Medical College for the session which has just ended, will no doubt afford as much gratification to the Council, as it has done to the Assessors and to myself.

"This result leaves little room for remark, yet it is but just to state, with reference to the report of the past year, that indications of increased industry on the part of the students, and of a more enlarged and intimate acquaintance with all the branches of professional knowledge, were very apparent in the course of the examination on the present occasion.

"As regards the very important branches of clinical instruction, minor operations of surgery, and compounding of medicines, to which the attention of the Council was solicited in last year's report, the Assessors see reason to be satisfied that full advantage has been taken, by both teachers and pupils, of the means at their disposal. But on these points they think that there is still room for amendment, which, however, they are fully aware can only be attained by more extended hospital accommodation in the College premises, for both medical and surgical cases.

"The results recorded in the table sufficiently display the relative merits of the candidates, to render it unnecessary to particularize by name those who have excelled.

"I cannot, however, conclude these brief remarks without adverting to the case of the single rejected candidate; and with reference to the testimony borne to his character by all the professors, and the exemplary diligence displayed by him in the earlier years of his studentship, to state the impression of all who witnessed the examinations, that his failure, or rather voluntary withdrawal, was in a great measure owing to protracted ill-health, under which he still laboured. The Assessors, therefore, unite with me in earnestly recommending that he may be permitted to prosecute his studies at the Institution for another year, at the end of which, it is hoped, he will be able to undergo a successful examination."

The Council of Education were pleased to express their approbation of the results of the examinations, and to sanction the proposal of the Examiner and assessors to permit Chunder Coomar Moitry to continue his studies for another year.

Lord Hardinge's prize of books to the value of Co.'s Rs. 200 was awarded to Tumez Khan, and the gold medal for general proficiency to Kedarnath Day.

Lord Hardinge's prize.

*Result of the Final Examinations of the Students*

No.	Names.	Written Examination.	Practical Anatomy.	Practical Surgery.	Anatomy and Physiology.	Chemistry.
1	Chunder Coomar } Moitry, ..... }	Very in- } different, }	Fair, .....	Bad, .....	Moderate,	Bad, .....
2	Buddinath Bromo, ...	Fair, .....	Good, .....	Good, .....	Very good,	Middling,
3	Nundololl Gangooly,	Fair, .....	Fair, .....	Fair, .....	Good, .....	{ Very } { indif- } { ferent, }
4	Sussibhooshun Seal,	Fair, .....	Good, .....	Good, .....	Very good,	Good, .....
5	Tumeez Khan,* .....	Excellent, ..	Very good,	Very good,	Excellent,	Very good,
6	Kallynath Mozendar,	Fair, .....	Good, .....	Good, .....	Very good,	Fair, .....
7	Kedarnath Ghose, ...	Middling, ..	Fair, .....	Fair, .....	Very good,	Very fair,
8	Jadub Chunder } Ghose, ..... }	Fair, .....	Good, .....	Good, .....	Very good,	Middling,
9	Tara Chunder } Banerjee, ..... }	Fair, .....	Fair, .....	Fair, ...	Excellent,	Very fair,
10	Kedar Nath Day, † ...	Good, .....	Very good,	Very good,	Very good,	Very fair,
11	Ramsoonder Ghose,	Fair, .....	Very good,	Very good,	Good, .....	Fair, .....
12	Omes Chunder Bose,	Indifferent,	Good, .....	Middling,	Good, .....	Indifferent,
13	S. Forbes, .....	Very fair, ..	Good, .....	Indifferent,	Very good,	Fair, .....
14	F. Garvin, .....	Indifferent,	Good, .....	Good, .....	Very good,	Middling,
15	J. Sheetz, .....	Excellent, ..	Very good,	Very good,	Very good,	Excellent,

*Calcutta,*  
*The 1st April, 1847.*

\* Gained Lord Hardinge's Prize.

† Gained a Gold Medal for general proficiency.

*of the Medical College—Sessions 1846-47.*

Botany.	Practice of Medicine.	Practice of Surgery.	Practice of Midwifery.	Medical Jurispru- dence.	Materia Medica.	Result.
Bad, .....	Good, .....	Bad.	Retired.			
Very good,	Very good,	Good, .....	Good, ...	Very good,	Very good,	Qualified.
Very good,	Very good,	Very good,	Very good,	Good, .....	Fair, .....	Qualified.
Fair, .....	Very good,	Indifferent,	Very good,	Good, ...	Good, .....	Qualified.
Excellent,	Excellent,	Excellent,	Excellent,	Excellent,	Very good,	Qualified.
Very fair,	Excellent,	Very good	Good, ...	Very good,	Very good,	Qualified.
Moderate,	Very good,	Very good,	Good, ...	Very good,	Very good,	Qualified.
Moderate,	Good, .....	Very good,	Indifferent,	Middling,	Good, ...	Qualified.
Good, ...	Excellent,	Very good,	Very good,	Very good,	Very good,	Qualified.
Good, ...	Excellent,	Very good,	Very good,	Excellent,	Excellent,	Qualified.
Good, ...	Very good,	Very good,	Excellent,	Very good,	Very good,	Qualified.
Moderate,	Very good,	Good, .....	Indifferent,	Very good,	Fair, .....	Qualified.
Fair, .....	Very good,	Fair, .....	Good, ...	Good, .....	Middling,	Qualified.
Very fair,	Very good,	Very good,	Very good,	Good, ....	Good, ...	Qualified.
Good, ...	Very good,	Very good,	Very good,	Excellent,	Very good,	Qualified.

J. FORSYTH, *Surgeon,*  
*Examiner.*

The final examinations of the Military Class were conducted by Professors Pearson, Webb, Jackson, R. O'Shaughnessy and Mouat, each in his own department. The results are recorded in the usual tabular form.

The examinations in anatomy and physiology conducted by Professors Pearson and Webb, were both verbal and practical. The following is an extract from their report :

"It is with great pleasure that we have again to record our entire satisfaction with the conduct and attainments of the Military Students of the College during the past year. Their zealous prosecution of their anatomical studies by actual dissections, and their quiet and orderly behaviour when thus engaged, deserve our fullest commendation.

The result of their good conduct, and of the diligence with which they have improved the valuable instructions in anatomy and physiology of Babu Mudusuden Gupto, both in the theatre and in the dissecting room, were manifested in this, that their dissections were chiefly guided by notes in Hindi and Urdu taken from the lecture of the Babu. Each of the students possessed for himself one of these manuals of his own writing, formed of notes taken in the theatre, in which the principal anatomical facts were carefully regarded: of this we had abundance of opportunity of judging in our daily inspection of their school.

The result of this final examination of the 1st class is very creditable. The students were examined by making each of them demonstrate his own dissections, their dissections being in many instances equal to those of the English taught students of the primary class, in some instances superior, so that the result of this experiment of instruction of natives of India in their own language in the difficult science of anatomy is highly satisfactory.

Ameer Khan.  
Ashruff Ali Khan.  
Ali Mahomed  
Suntpersaud Singh.  
Shahamut Oolah.  
Sheik Alibux.  
Meer Ramzan Ali.  
Meer Enayut Hossein.

Those students of the 1st class whose dissections were particularly good, are named in the margin, and their knowledge of the uses of the parts dissected was equally commendable.

Sheik Kurreem Bux 3d.  
Myboob Khan.  
Sheik Imdad Hossein.  
Sheik Elahee Bux 1st.  
Fyzoola Khan.  
Mirza Mahomed Jan.  
Sheik Abdul Wahab 2d.  
Bakir Khan.

The second class consisting of thirty-nine (39) students, were examined upon the bones, ligaments, and dry preparations of vessels, and upon the uses of these parts which they had to demonstrate. Those students who most distinguished themselves, and who have most profited by their studies in the dissecting room, are named in the margin.

Those students who evinced the greatest incompetency were all natives or residents of Calcutta, and form a marked contrast to the names below them on the list, who are all from the upper provinces of India.

Professor Webb reported also his entire satisfaction with the diligence and attention of the students who attended this year his course of instructions in military surgery. The great advantage which the students of the military class now possess in a previous knowledge of practical anatomy, cannot be too highly appreciated."

*List of First Class Students of the Military Class for final examination in the Medical College, Sessions 1846-47.*

Number.	NAMES,	Date of Admission.	No. of times absent, &c., during the last year.				Duties performed by them as Dressers.		General Character and Conduct.	REMARKS.
			Absent.	Sick.	Leave.	Total.	Male Hospital, &c.	Out-door Dispensary.		
1	Ameer Khan, .....	15th July 1844,	...	None,	..	..	4	4	Very good,	An attentive and good student.
2	Luthfoollah Khan, ..	Ditto, .....	18	6	..	24	3	4	Middling, ...	Quiet and attentive, but very dull.
3	Mirza Rumzan Alie, .....	Ditto, ..	22	30	..	52	10	6	Very good,	Attentive and a good student.
4	Shaikh Soopun, .....	Ditto, .....	5	4	..	9	8	6	Middling, ...	Rather dull and not over attentive.
5	Shaikh Enayut Alie, .....	Ditto, .....	..	None,	..	..	6	4	Good, .....	Attentive and a good student.
6	Pursun Loll, .....	Ditto, .....	..	3	..	3	18	..	Ditto, .....	A most intelligent lad.
7	Meer Enayut Hossain, ..	Ditto, .....	..	..	6	6	24	..	Ditto, .....	Ditto ditto.
8	Shaikh Masoom, .....	Ditto, .....	14	2	..	16	4	4	Middling, ...	Not very bright, but quiet and attentive.
9	Shaikh Mahomed Hossain,	Ditto, .....	..	None,	..	..	16	2	Good, .....	{ A very good student—well behaved and attentive to his duties.
10	Ushruff Alie Khan, .....	Ditto, .....	..	None,	..	..	6	15	Very good,	{ One of the best students in the class for good character and proficiency.
11	Shaikh Korban Alie, .....	Ditto, .....	10	5	..	15	4	4	Middling, ...	A very good lad.
12	Shaikh Alie Mahomed, ...	Ditto, .....	..	None,	..	..	18	5	Very good,	{ An excellent student, well behaved, most attentive to his duties, and highly efficient.



List of First Class Students of the Military Class for final examination in the Medical College, Sessions 1846-47.—(Continued.)

Number.	NAMES.	Date of Admission.	No. of times absent, &c., during the last year.				Duties performed by them as Dressers.		General Character and Conduct.	REMARKS.
			Absent.	Sick.	Leave.	Total.	Male Hospital, &c.	Out-door Dispensary.		
13	Shaikh Torab Alie,.....	15th July 1844,	2	..	..	2	9	4	Middling,...	Rather dull, but otherwise a very good lad.
14	Shaikh Kurreemoodin, ...	Ditto, .....	..	None,	..	..	4	6	Ditto, .....	A very good lad.
15	Shaikh Emam Alie, ....	1st Nov. 1844,...	8	..	..	8	16	4	Ditto, .....	Ditto ditto,
16	Wuzeer Alie Khan, .....	17th March 1845,	3	..	..	3	4	4	Good, .....	A very good lad—smart and intelligent.
17	Lalla Ramdyall, .....	Ditto, .....	..	None,	..	..	4	4	Ditto, .....	A quiet good man, but rather dull.
18	Suntersaud Sing, .....	Ditto, .....	..	None,	..	..	4	4	Very good,	Quiet and well behaved, but rather dull.
19	Shaikh Kurrim Bux, 2d,...	Ditto, .....	10	4	..	14	16	.....	Middling,...	{ Intelligent, but not as attentive as he should be.
20	Shahmut Oollah,.....	Ditto, .....	..	None,	..	..	2	4	Very good,	Very well behaved.
21	Shaikh Kurrim Bux, 1st,...	Ditto, .....	28	..	..	28	10	2	Middling,...	Well behaved, and a good student.
22	Shaikh Abdool Ajuz, .....	15th July 1844,	4	..	..	4	4	4	Ditto, .....	Rather idle.
23	Shaikh Alie Bux, .....	Ditto, .....	..	None,	..	..	3	4	Very good,	A smart good student.
24	Shaikh Ruhmut Alie, .....	Ditto, .....	11	22	..	33	6	4	Fair, .....	{ Has been sick a long time with rheumatism, but is smart and attentive when well.
25	Shaikh Kulleemoollah, ...	17th March 1845,	2	41	..	43	.....	.....	Middling,...	{ Quiet and attentive, but not particularly bright.
FREE STUDENTS.										
26	Meer Asuff Alie, .....	April 1844, .....	..	..	..	..	.....	..	Ditto, .....	{ Nothing favourable can be reported.
27	Syud Kurrim Bux, .....	3d Sept. 1843, ...	40	..	..	40	2	2	Ditto, .....	

FRED. J. MOUAT, M. D., Secretary.

Medical College, the 15th March, 1847.

*Result of the Final Examination of Students of the Military Class of the Medical College, Sessions 1846-47.*

Number.	NAMES.	Subjects of Examination.				REMARKS.
		Anatomy and Physiology, practical and viva voce.	Surgery, Practical and Oral.	Medicine.	Materia Medica and Chemistry.	
1	Shaik Allie Mahomed, ...	Very good,..	Very good,..	Very good,..	Excellent,..	{ Passed. Gained the gold medal for general proficiency. Do. 2d prize for general proficiency. Do. gained a certificate of honour. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto.
2	Sunt Persaud Sing,.....	Excellent,..	Very good,..	Very good,..	Good,.....	
3	Shamut Oollah, .....	Excellent,..	Very good,..	Very good,..	Very good,..	
4	Ashruff Allie Khan,.....	Excellent,..	Good, .....	Good,.....	Excellent,..	
5	Mirza Rumzaun Allie, ...	Very good,..	Very good,..	Good,.....	Good,.....	
6	Ameer Khan, .....	Very good,..	Good, .....	Very good,..	Good,.....	
7	Shaik Enyet Allie, .....	Very good,..	Good, .....	Good,.....	Good,.....	
8	Shaik Allie Buksh, .....	Excellent,..	Good, .....	Good,.....	Fair, .....	
9	Pursun Loll,.....	Very good,..	Good, .....	Good,.....	Very good,..	
10	Meer Enyet Hossain, .....	Good, .....	Good, .....	Good,.....	Very good,..	
11	Shaik Mahomed Hossain,..	Good, .....	Good, .....	Good,.....	Very good,..	
12	Shaik Kurreem Ootlin, ...	Very good,..	Good, .....	Good,.....	Middling, ...	
13	Shaik Masoom,.....	Very good,..	Good, .....	Good,.....	Middling, ...	
14	Shaik Kullim Oollah, .....	Very good,..	Good, .....	Good,.....	Middling, ...	

1st Grade of Merit.

*Result of the Final Examination of Students of the Military Class of the Medical College, Sessions 1846-47.—(Continued.)*

Number.	NAMES.	Subjects of Examination.				REMARKS.
		Anatomy and Physiology, practical and viva voce.	Surgery, Practical and Oral.	Medicine.	Materia Medica and Chemistry.	
15	Shaik Soopun, .....	Fair, ... ..	Good, .....	Good,.....	Good,.....	{ 2d Grade of Merit. Passed. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Ditto. Rejected. Ditto. Ditto. Ditto. } Passed as fit for a very subordinate appointment. Sent back for another year.
16	Shaik Kurrim Buksh, 2d,	Good, .....	Fair, .....	Fair, .....	Fair, .....	
17	Shaik Emam Alie, .....	Good, .....	Good, .....	Middling, ...	Middling, ...	
18	Wuzeer Allie Khan, .....	Middling, ...	Good, .....	Good,.....	Fair, .....	
19	Lolla Ramdyal, .....	Middling, ...	Tolerable,...	Good,.....	Fair, .....	
20	Shaik Torab Allie, .....	Good, .....	Tolerable,...	Moderate,...	Fair, .....	
21	Shaik Abdool Ajuz, .....	Bad, .....	Good, .....	Good,.....	Good,.....	
22	Luthfoolla Khan,.....	Fair, .....	Tolerable,...	Moderate,...	Very middling	
23	Shaik Korban Allie, .....	Good, ... ..	Tolerable,...	Bad, .....	Bad, .....	
24	Rohomuth Allie, .....	Indifferent,..	Tolerable,...	Fair, .....	Fair, .....	
25	Syed Kurreem Buksh, ...	Bad, .....	Good, .....	Moderate,...	Middling,...	
26	Meer Asuff Allie,.....	Indifferent,..	Fair, .....	Fair, .....	Fair, .....	
27	Shaik Kurrim Buksh, 1st,	Fair, .....	Bad, .....	Good,.....	Middling, ...	

FRED. J. MOUAT, M. D., Secretary.

Medical College, the 3d April, 1847.

Twenty-one Native Doctors have been placed at the disposal of the Medical Board, and one pupil from Etawah, supported by the Government of the N. W. Provinces, has been passed as fit for a very subordinate appointment—his age (about 35) and natural dulness, rendering it unlikely that he would profit by a further residence in the Medical College. Five students were rejected. The results have been most creditable, and reflect the highest honour upon Babu Madusuden Gupta, whose value as a public officer and efficient teacher it would be impossible to exaggerate.

Professors Pearson and Webb furnished the subjoined account of the anatomical department of both classes of the Medical College.

“ The senior students of the primary class were called upon to give written replies to the questions in anatomy and physiology contained in Appendix D.; and as the awarding of the medals and honorary distinctions were to depend upon this and the practical examination, the students of the junior class were also allowed to contend, when all of them (except eight who had but recently entered the college) availed themselves of the privilege.

In awarding the number of marks, we have considered the value of the written and practical examination as equal—each fifty marks; so that the aggregate of both examinations is calculated at one hundred for the highest number.

By this plan of a practical and written examination we were enabled to test more fully the comparative merits of the students. One might excel in knowledge gained from books, another in that of actual dissection; but it would evidently require both to gain a high number.

Such being the test, we consider we have good reason to be satisfied with the result; though we are somewhat surprised to find the superiority in favour of the junior class. In the written examination the highest number of marks attained by the senior class was thirty-eight by M. Covington; of the junior class forty-one by J. Kearney; of the senior class three attained above the number of twenty marks, and one above thirty; of the junior class nine attained above twenty marks, two above thirty, and one above forty. In the practical examination out of seventeen senior students the highest number of marks, fifty, was attained by three, viz. Nilmadhub Mookerjee, Nobogopaul Ghosaul and Sib Chunder Bysack; and of twenty-one junior students, the highest number was attained by five, Chunder Coomar Bose, Omeschunder Mitter, Sreenath Mookerjee 2nd, Madhub Loll Shome, and Dinonath Dass.

In the aggregate of both the written and practical examinations the highest number reached was seventy-nine by Dinonath Dass, a junior student; in the senior class eight gained more than fifty marks, and five more than sixty; in the junior class ten gained more than fifty marks, nine more than sixty, and four seventy and upwards. The result will be better seen in the following tabular form.

*Written Examination.*

Senior class consist-	}	3	= 26 and upwards.
ing of 16 students.		1	= 38 highest No. attained.

*Written Examination.*

Junior class consisting of 21 students.  $\left\{ \begin{array}{l} 9 = 22 \text{ and upwards.} \\ 2 = 32 \text{ and upwards.} \\ 1 = 41 \text{ highest No. attained.} \end{array} \right.$

*Practical Examination.*

Senior class consisting of 17 students.  $\left\{ \begin{array}{l} 50 \text{ the highest No. of marks.} \\ 10 = 30 \text{ and upwards.} \\ 5 = 40 \text{ and upwards.} \\ 3 = 50 \end{array} \right.$

Junior class consisting of 21 students.  $\left\{ \begin{array}{l} 10 = 30 \text{ and upwards.} \\ 2 = 40 \text{ and upwards.} \\ 5 = 50 \end{array} \right.$

*Aggregate of both Examinations.*

100 the highest No. of marks.

Senior class.  $\left\{ \begin{array}{l} 8 = 50 \text{ upwards of} \\ 5 = 60 \text{ ditto.} \\ 1 = 68 \text{ highest No. attained.} \end{array} \right.$

Junior class.  $\left\{ \begin{array}{l} 10 = 50 \text{ upwards of} \\ 9 = 60 \text{ ditto.} \\ 4 = 70 \text{ and upwards.} \\ 1 = 79 \text{ highest No attained.} \end{array} \right.$

Though there is still room for improvement, the style and handwriting of the papers are much better than they were last year, but in judging of them in this respect, as well as in that of their knowledge of anatomy, it must be remembered that they are taught, and write, a most difficult science in a foreign language. The conduct of the students in the anatomical class, during the past year, has been such as to merit very high approval. They have for the most part been orderly, diligent and attentive, both at lecture and in the dissecting room.

The eight remaining students of the junior class, who did not contend for honorary distinctions were examined orally and practically, with a result as satisfactory as could be expected from their standing in the College."

Concerning the class and department of Midwifery, Professor Stewart furnished the following memorandum :

"The arrangements of the College having necessitated the delivery of the Midwifery course during the summer, in order to afford more time for dissection, &c. in the winter months, the whole 75 lectures were delivered in the months of June, July, August, September and October, at the rate of four lectures per week.

During the months of January and February, however, at the request of the students themselves, examinations were held twice a week, during which the whole of the preceding course was reviewed with much advantage.

I am able to speak in terms of great satisfaction of the attention and punctuality of all the students in their attendance at lecture, and their progress will, I think, be found to have been commensurate.

From the very nature of things they have not all enjoyed equal advantages in a practical way by attendance in the hospital.

The Ceylon and Christian pupils resident within the College walls have necessarily enjoyed the best opportunities of witnessing and assisting at the cases of labor, and have availed themselves eagerly of their advantages in this respect, particularly Messrs. Sheetz, Pettingal, Garvin, Forbes and Marcus.

Of the Hindu students who have been practically engaged with most frequency, are Babus Gobin Chunder Dutt, Nundoolall Gangolee, Chunder Moitry, and Jadub Chunder.

It is impossible for me to speak in terms too high of the assiduity and good conduct of Tumeez Khan, the Goodeve scholar, who has resided in the hospital, and has assisted at every single case of labor which occurred during the past twelve months.

I must also say the same of the two excellent young men, Meer Enayet Hossein and Pursun Lall, of the secondary class, whose conduct as dressers during the same period, has been such as to merit my highest commendation and best thanks.

It has been a great cause of regret to me, that the Resident Graduate, (or House Surgeon) owing to the smallness of the salary now attaching to the office, has been so frequently removed to some better appointment. This has led to some confusion in the mode of keeping the books, and to no small disadvantage both to the patients and the pupils, from the occasional risk thus arising of the *practice* falling into the hands of unqualified pupils during my absence.

I would respectfully beg to suggest, that means be taken for the future to obviate this, either by making the appointment a permanent one, or attaching the term of one year to its tenure, and raising the salary from 50 to 100 rupees, as was formerly the case."

In Medicine, Professor Jackson reported as follows :

"I have great pleasure in reporting on the general good conduct and attention of the pupils of my class during the past session. Their regularity and assiduity in the performance of their duties in the hospital, and diligence in attendance upon the lectures delivered by me, has been most exemplary, and I have with a few exceptions been quite satisfied with the manner in which they have answered their questions in the written examination.

I have great pleasure in awarding the first place in the written examination to Mr. Pettingal, who has during the whole season been a very attentive student, and in his answers has adhered more closely to the subject of the questions than has been the case with others, especially I may mention Mr. Loftus, who otherwise would have held a better place

Mr. Picachy I have placed next to Mr. Pettingal, and I have awarded to him the clinical prize in consequence of the very efficient manner in which he has kept up his clinical reports, and for the uniform regularity of attendance in the discharge of his duties at the hospital, rarely missing to go round with me in my daily morning visit throughout the session.

Of the native students, Nobinkristo Bose has evinced a better acquaintance with the English language than any of the others; some of his written answers are excellent and deserving of much commendation, others are deficient in practical information and the knowledge of hospital treatment, which have prevented his holding this year so high a place as there is promise of at a future examination. The generally good answers of Sreenauth Mookerjee and Nilmadub Mookerjee are very creditable.

The lectures on Medical Jurisprudence commenced in November, and were continued three times a week, until the 15th of March, amounting in all to thirty-nine in number. The course embraced the following subjects:—General introduction, medical evidence, and the nature of the courts in which it is required: the laws applicable to criminal cases connected with Medical Jurisprudence in India: death, the modes in which it may occur, and by which it may be accurately ascertained: the subject of wounds of all kinds, in their civil and criminal relations: hanging, drowning, asphyxia from mephitic gases, death from cold, hunger and starvation: virginity, rape, pregnancy, abortion, delivery, infanticide: ambiguity of sex, feigned diseases, age and identity, life assurance, probability of survivorship, insanity, and medical police.

It was found impossible in the limited time allowed to embrace the important subject of Toxicology, which will, therefore, be considered at the commencement of the next course.

The course of *Materia Medica* and Therapeutics comprised eighty-six lectures, and embraced every topic considered of importance and interest, the subject of the actions and uses of medicine, having been particularly dwelt upon. The conduct and attendance of the pupils in both classes were satisfactory. Examinations were instituted as often as practicable.

Mr. Robertson reported that, since the commencement of the course in June last, he had delivered ninety-seven lectures on inorganic and organic chemistry, including eleven lectures on heat, light and electricity; and that he had held upwards of forty examinations during that time, at which the greater part of the students acquitted themselves well, though, as may always be expected, a few shewed little or no knowledge of chemical science.

He also reported that the giving of the eleven lectures on heat, light and electricity, was accompanied by more difficulties, and caused more labour, trouble, and expense to him than the whole of the rest of the course. From the singular deficiency of the college apparatus, and from the broken and dilapidated state in which the greater part of that little was, he has had to furnish by his own exertions, and from his own resources, a set of Galvanic batteries capable of exhibiting the usual class experiments, an electric machine that would give the *two* electricities, electro-magnetic coils,

gasholders for the experiments on heat and light, a model steam engine, and a good deal of small apparatus of which the college is destitute. Even with these additions, however, a number of the usual experimental illustrations could not be given, in consequence of there being no apparatus for them.

He also further reported, that the written annual examination of the chemical class has produced exercises of a much higher standard generally than those of the preceding year, and that this improvement has been most conspicuous in regard to those students, who, according to his recommendation, have adopted the recent and remarkably accurate "Outlines of Chemistry," by Dr. Gregory, as a text book. Many of these students have, in their exercises, shewn themselves to be adepts in the chemical symbols used in it, which give such precision and brevity to chemical language. It is to be regretted, that there is no similar work on practical Pharmacy, in accordance with the London Pharmacopœia, which could be put into the hands of the students, without the risk of impressing on their minds false facts, erroneous views, bad processes, and worse manipulation.

The examinations of the general students of the English Class, comprising all who did not appear for the final ordeal, were conducted by means of written papers, which are contained in Appendix D. The medals and certificates of honour were awarded in strict accordance with the results of this trial. It was not deemed advisable or necessary to print the whole of the replies, or the answers in all subjects, as they were very voluminous, and would occupy an undue amount of space in the report—a few have therefore been selected as specimens, from the replies of Final, Senior and Junior Students, and are made known for general information. They are reprinted verbatim from the manuscripts of the pupils, no alterations of any kind being allowed, and all errors of grammar and fact being retained. When the disadvantages as respects originally defective knowledge of English are taken into account, it is believed that these papers will bear a favourable comparison with those of any college in India.

With reference to the award of certificates of honor it was determined that the rule enacted upon the subject should not be adhered to, as it would render them so general as to depreciate their value and estimation. Each professor, therefore, handed in a list of those whom he considered specially deserving of reward and distinction from the merit and accuracy of their papers. A list of prizemen, and those to whom certificates were assigned, is contained in Appendix E.



The annual returns of the Male and Female Hospitals, and Out-door Dispensary, are published in the Appendix. From them may be gathered the nature and extent of the clinical means at the disposal of the professors, and their inadequacy for the complete and proper instruction of so extended a school. The surgical record is particularly interesting, and the statistical history of the Female Hospital, furnished by Professor Stewart, is an epitome of every thing of interest connected with that most useful department since its foundation.

At the examination for the admission of free and stipendiary scholars, nineteen candidates presented themselves. Of these six were admitted as stipendiary scholars, four Hindus and two Mahommedans: of the latter one was formerly a pupil of the Patna College, and the other of the Calcutta Madrussa—making in all, besides Tameez Khan, six Mahommedan students now studying medicine in the English Department,—a larger number than has ever at any previous period, been contained in that division of the school.

Two free students were at the same time passed—one a Junior Scholar of the Patna College and a Christian, the other a Hindu.

There being still several stipendiary vacancies, another examination will be held on the 5th of June next, of which due notice has been given to all schools and colleges.

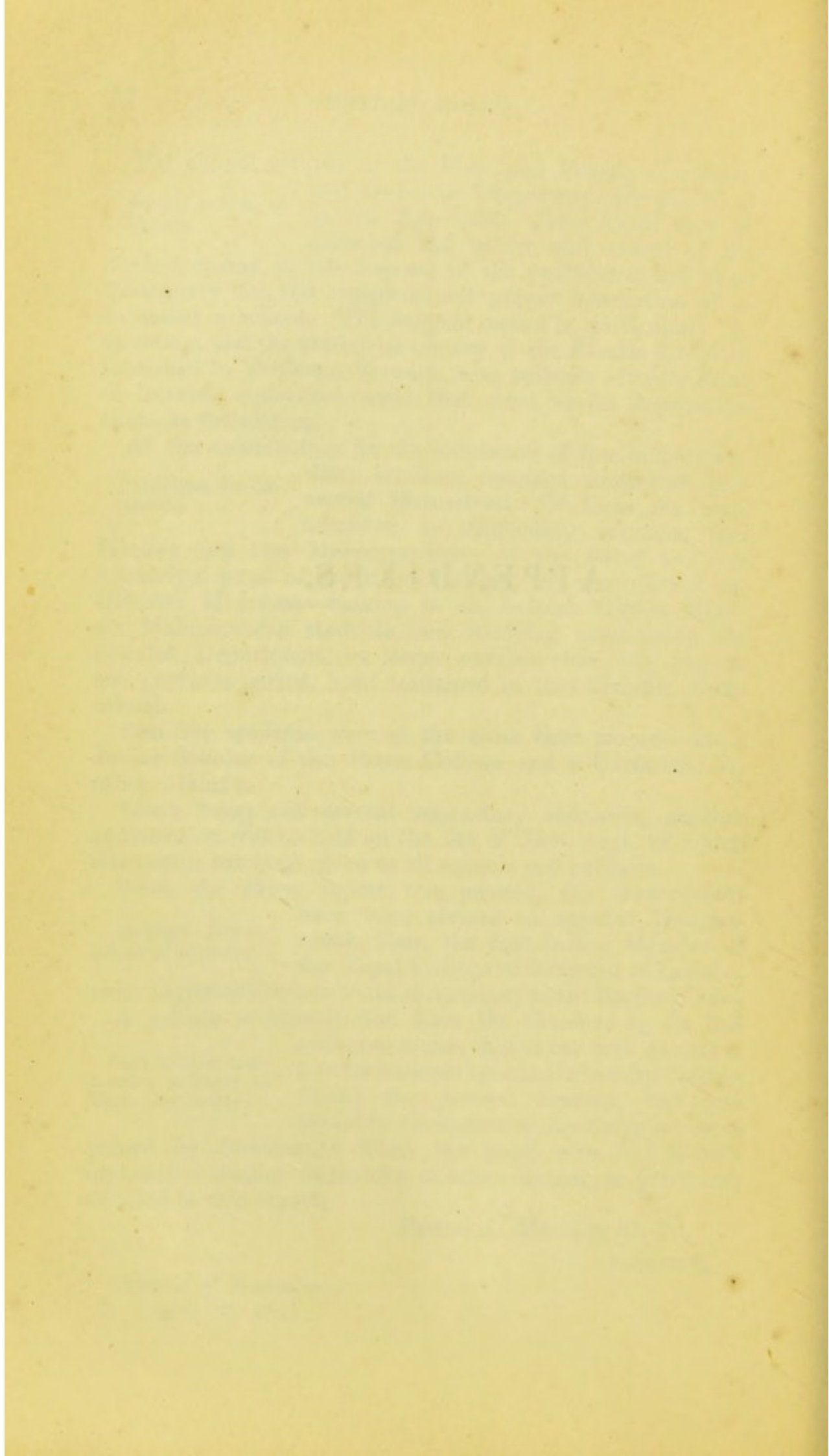
Since the above report was printed, the Government have been pleased to appoint Dwarkanauth Bose, the first Indian Member of the Royal College of Surgeons of London, to be Assistant Demonstrator of Anatomy to the English Class.

A private communication from Dr. Goodeve by the last mail announces, that at the first examination for honours held in University College during the present Session, the Gold Medal in Comparative Anatomy has been gained by Bholanauth Bose, the pupil who had already obtained a similar distinction in other classes, as previously detailed in this report.

FRED. J. MOUAT, M. D.,  
*Secretary.*

*Council of Education,*  
*April 10, 1847.*

APPENDIXES.



APPENDIX A.

Appendix A. No. I.

Annual Return of Diseases treated in the Male and Female Hospitals of the Medical College, from  
1st January to 31st December 1846.

DISEASES.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	REMARKS.
1. Zymotic Diseases, .....	45	1281	1326	1153	132	41	
Sporadic Diseases—							
2. Of uncertain or variable seat, .....	2	105	107	100	3	4	
3. Of the Nervous System, .....	10	123	133	112	15	6	
4. Of the Respiratory Organs, .....	10	83	93	72	15	6	
5. Of the Organs of Circulation, .....	0	6	6	4	2	0	
6. Of the Digestive Organs, .....	11	138	149	125	17	7	
7. Of the Urinary Organs, .....	0	28	28	27	1	0	
8. Of the Organs of Generation, .....	5	71	76	68	0	8	
9. Of the Organs of Locomotion, .....	12	137	149	139	0	10	
10. Of the Integumentary System, .....	8	165	173	168	0	5	
11. External causes, Poisoning, Asphyxia, } Injuries, &c., .....	20	358	378	333	20	24	

DISEASES.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	REMARKS.
1.							
1. Diarrhoea, .....	0	31	31	31	0	0	
2. Dysentery, .....	24	270	294	242	33	19	
3. Cholera, .....	0	240	240	159	81	0	
4. Ague, .....	4	61	65	65	0	0	
5. Remittent Fever, .....	0	295	295	267	0	0	
6. Common Continued Fever, .....	5	187	192	192	16	12	
7. Erysipelas, .....	0	7	7	6	1	0	The fatal case was Erysipelas of the head and face, from severe external injury.
8. Syphilis, .....	12	189	201	200	0	10	
9. Hydrophobia, .....	0	1	1	0	1	0	
2.							
10. Inflammation, .....	0	21	21	21	0	0	Of the Eye. Anasarca, Hydrocele, &c.
11. Dropsy, .....	2	42	44	42	0	2	
12. Abscess, .....	0	4	4	4	0	0	
13. Mortification, .....	0	7	7	3	3*	1	* Two of the fatal cases were mortification of the lower extremities after severe injuries, for which they underwent amputation; the third was a case of Gangrena Senilis.
14. Scrofula, .....	0	4	4	3	0	1	
15. Carcinoma, .....	0	1	1	1	0	0	

16.	Tumour, .....	0	26	26	26	0	0	0	0	{ * Mostly cases of Insolation in European Seamen exposed to the sun during a state of intoxication.
17.	Cephalitis, .....	0	2	2	2	0	0	0	0	
18.	Apoplexy, .....	0	12	12	12	0	12*	0	0	
19.	Paralysis, .....	0	13	13	11	0	0	2	2	{ * All cases of Tetanus, 2 in the acute Idiopathic form died; the third, a Chronic case, recovered.
20.	Convulsions, .....	0	3	3	1	2*	0	0	0	
21.	Epilepsy, .....	1	4	5	5	0	0	0	0	{ * All four were transferred to the Lunatic Asylum as incurable.
22.	Insanity, .....	0	4	4	4*	0	0	0	0	
23.	Delirium Tremens, .....	7	85	92	87	1	4	4	4	{ * Two of the fatal cases were complicated with Pericarditis.
24.	Bronchitis, .....	6	36	42	38	0	0	4	4	
25.	Pleurisy, .....	2	20	22	22	0	0	0	0	
26.	Pneumonia, .....	0	14	14	10	4*	0	0	0	{ * The greater proportion of these cases, as usual, occurred among Native Portuguese Christians.
27.	Asthma, .....	0	2	2	2	0	0	0	0	
28.	Phthisis, .....	2	11	13	0	11*	2	2	2	{ * Originally a case of acute rheumatism, with metastasis from the serous membrane of the large joints to the Pericardium.
29.	Pericarditis, .....	0	1	1	0	1*	0	0	0	

3.

4.

5.

DISEASES.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	REMARKS.
30. Aneurism,.....	0	1	1	0	1*	0	* Of the left carotid—died 10 days after the operation, from sloughing of the sac and ulceration of the internal jugular vein.
31. Heart, &c., diseases of, ..... 6.	0	4	4	4	0	0	
32. Enteritis, .....	0	3	3	0	3*	0	* All these cases admitted in the last stage of the disease. * Two of the fatal cases were the result of external injury; the third was the result of ruptured bladder.
33. Peritonitis, .....	0	6	6	4	2*	0	
34. Worms,.....	0	4	4	4	0	0	Four were cases of strangulated hernia requiring operation; one proved fatal from previous mortification of the intestine: the remaining six were simply cases of incarcerated hernia, reduced by taxis.
35. Ascites,.....	2	22	24	21	2	1	
36. Hernia,.....	0	10	10	9	1	0	
37. Colic or Ileus, .....	0	5	5	5	0	0	
38. Hepatitis, .....	0	25	25	16	6	3	
39. Jaundice, ..	0	4	4	4	0	0	
40. Spleen, diseases of, .....	7	59	66	60	3	3	

41.	Nephritis,.....	0	2	2	2	0	0	0	0	0	{ The fatal case was the result of jaundice caused by the impaction of gall stones in the biliary ducts subsequent to the operation, from which he nearly recovered.
42.	Ischuria, .....	0	6	6	6	0	0	0	0	0	
43.	Diabetes, .....	0	1	1	1	0	0	0	0	0	
44.	Stone, .....	0	11	11	10	0	1	0	0	0	
45.	Stricture,.....	0	8	8	8	0	0	0	0	0	
46.	Childbirth, .....	5	52	57	49	0	0	0	8	8	{ Including Amenorrhœa, Menorrhagia, Lencorrhœa, Abortion, Metritis, &c.
47.	Ovarian Dropsy, .....	0	1	1	1	0	0	0	0	0	
48.	Uterus, &c., diseases of,.....	0	18	18	18	0	0	0	0	0	
49.	Rheumatism, .....	12	137	149	139	0	0	0	10	10	
50.	Carbuncle, .....	0	6	6	6	0	0	0	0	0	{ Including Herpes Zoster, ... Ichthyosis, ..... 1 Leprosy Vulgaris, ..... 2 Rupia, ..... 4 Psora, ..... 14
51.	Phlegmon, .....	0	5	5	5	0	0	0	0	0	
52.	Ulcers, .....	8	115	123	118	0	0	0	5	5	
53.	Fistula,.....	0	16	16	16	0	0	0	0	0	
54.	Skin, &c., diseases of,.....	0	23	23	23	0	0	0	0	0	



DISEASES.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	REMARKS.
12.							
55. Causes not specified, .....	0	30	30	30	0	0	Including thirteen cases of Scurvy and seventeen of Cataract. Including simple contusions, contused, incised and lacerated wounds, burns, scalds, dislocations, concussion of the brain, &c. The fatal cases were concussion of the brain. * Mostly fractures of the skull from injuries in the streets. By Arsenic, ... .. 1 " Aconite, ... .. 3 " Opium, ... .. 6 " Nerium Odorum,..... 1 " Datura,..... 3 —14 The fatal cases were By Aconite, ..... 1 " Opium, ..... 3 —4
56. Wounds and Accidents, .....	13	250	263	245	4	14	
57. Fractures, .....	7	64	71	49	12*	10	
58. Poisoning, .....	0	14	14*	10	4	0	
Total,.....	123	2495	2618	2302	205	111	

FRED. J. MOUAT, M. D.  
Secretary.

Medical College, the 1st January, 1847.

No. II.

Table of Admissions and Deaths in the Medical College Hospital, for the Year 1846.

MONTHS.	EUROPEANS.						REMARKS.	NATIVES.						REMARKS.
	Admit- ted.		Discharg- ed.		Died.			Admit- ted.		Discharg- ed.		Died.		
	Medical Cases.	Surgical ditto.	Medical ditto.	Surgical ditto.	Medical ditto.	Surgical ditto.		Medical ditto.	Surgical ditto.	Medical ditto.	Surgical ditto.	Medical ditto.	Surgical ditto.	
January 1846,	64	27	53	21	9	1	62	43	56	50	7	1	Of the deaths among Na- tives—	
February	66	30	54	25	7	0	56	51	63	44	6	3	39 were from 1 to 2 days in Hospital.	
March	58	29	59	20	11	0	64	55	57	49	3	2	12 were from 2 to 7 days in Hospital.	
April	62	30	53	24	15	0	59	56	64	47	3	4		
May	71	36	62	30	15	0	63	47	55	43	8	2		
June	74	33	65	28	9	0	58	46	64	51	6	0		
July	69	35	60	27	7	0	55	47	60	42	4	1	17 were from 7 to 14 days in Hospital.	
August	77	29	66	23	6	0	62	46	57	49	3	4		
September	68	31	62	25	7	0	60	53	56	44	2	2	15 were from 14 to 20 days in Hospital.	
October	75	30	67	37	7	0	58	49	62	43	8	4		
November	73	34	64	30	10	0	54	46	60	41	5	2	11 were from 20 to 40 days in Hospital.	
December	65	30	59	28	7	0	57	52	56	47	4	0		
Total....	822	374	724	318	110	1	708	591	710	550	69	25		

Medical College, the 1st January, 1847.

FRED. J. MOUAT, M. D. Secretary.

## No. III.

*Annual Return of Surgical Operations performed by Professor R. O'Shaughnessy, F. R. C. S., at the Medical College Hospital, from the 1st of January to the 31st of December 1846.*

Nature of Operations.	Number.	RESULT.		Remarks.
		Died.	Discharged cured.	
Amputation of arm,.....	2	0	2	<p>Both cases occurred in old feeble men, who were run over by carriages in the streets, and sank under the effects of their injuries.</p> <p>The largest of these weighed 40 lbs.</p> <p>* The patient was an old enfeebled subject, with a large aneurismal tumor on the left side of the neck below the bifurcation of the artery: sloughing of the aneurismal sac took place ten days after the operation, involving the internal jugular vein which subsequently gave way, and the patient sank from hæmorrhage.</p>
Ditto of the leg,.....	2	2	0	
Hypertrophied tumors of the scrotum removed,.....	3	0	3	
Large encysted tumors from various parts of the body,.....	5	0	5	
Extirpation of the lower jaw for Osteo Sarcoma, .....	1	0	1	
Excision of cancerous breast,.....	1	0	1	
Resection of the wrist-joint for caries of the bone,.....	1	0	1	
Carotid artery tied for aneurism,	1	1*	1	

Operation for strangulated hernia,	4	1	3	<p>{ The fatal case occurred in an old man admitted in a moribund state from mortification of the intestine, which was irreducible in consequence of old and firm adhesions along the whole course of the sac.</p> <p>{ This patient died of jaundice, caused by the impaction of gallstones in the ductus communis choledocus.</p> <p>{ Occurred in a young child, who had swallowed a custard apple-seed which made its way through the larynx down into the trachea; the seed was expelled through the wound immediately after the operation, but the child died three days afterwards from severe bronchial inflammation.</p> <p>{ Compound fractures of the skull with depression of bone and extensive laceration of the brain.</p> <p>{ One case of two months standing, resisted every attempt at reduction; the others were recent, and easily reduced.</p> <p>{ Including amputation of fingers and toes, hypertrophied prepuce, operation for phymosis, fistula in ano, the removal of condylomatous and hemorrhoidal tumors, &amp;c. &amp;c.</p>
Bladder punctured for permanent stricture of the urethra, }	2	0	2	
Lithotomy, .....	11	1	10	
Tracheotomy, .....	1	1	0	
Trephining fractured skulls for depression, .....	2	2	0	
Operations for cataract, .....	17	0	17	
Luxations of the arm reduced, .....	8	0	8	
Ditto of the hip ditto, .....	10	0	9	
Operation for hydrocele, .....	23	0	23	
Minor operations, .....	50	0	50	
Total, ...	144	8	135	

Medical College, the 1st January, 1847.

FRED. J. MOUAT, M. D. Secretary.

## No. IV.

*Annual Report of Diseases treated in the Out-Door Dispensary of the Medical College, from 1st January to 31st December 1846.*

Nos	DISEASES.	Remained.	Admitted.	Total.	Discharged	Relieved.	Absconded.	Died.	Remaining.	Remarks.
1.	Zymotic diseases,.....	26	6036	6062	5453	561	0	0	48	
	Sporadic Diseases—									
2.	Of uncertain or variable seat, ...	6	1261	1267	987	264	0	0	16	
3.	Of the Nervous System, .....	0	107	107	40	44	22	0	1	
4.	Of the Respiratory Organs,.....	11	819	830	586	235	0	0	9	
5.	Of the Digestive Organs, .....	8	907	915	647	262	0	0	6	
6.	Of the Urinary Organs,.....	0	154	154	114	40	0	0	0	
7.	Of the Organs of Locomotion, .	15	4204	4219	3075	1132	0	0	12	
8.	Of the Integumentary System,	5	4781	4786	4754	0	0	0	32	
9.	External causes, poisoning, } asphyxia, injuries, &c., .....	9	854	863	826	28	0	0	9	
	1.									
1.	Croup, .....	0	46	46	46	0	0	0	0	
2.	Thrush,.....	0	25	25	25	0	0	0	0	
3.	Diarrhoea,.....	0	478	478	478	0	0	0	0	
4.	Dysentery, .....	11	880	891	640	240	0	0	11	
5.	Cholera, .....	0	191	191	0	191	0	0	0	

6.	Ague,.....	3	463	466	461	0	0	0	0	5
7.	Remittent Fever, .....	0	358	358	222	130	0	0	0	6
8.	Common continued Fever,.....	5	636	641	634	0	0	0	0	7
9.	Erysipelas, .....	0	22	22	22	0	0	0	0	0
10.	Syphilis,.....	7	2937	2944	2925	0	0	0	0	19
	2.									
11.	Inflammation, .....	4	652	656	649	0	0	0	0	7
12.	Dropsy, .....	2	321	323	285	36	0	0	0	0
13.	Mortification, .....	0	7	7	7*	0	0	0	0	0
14.	Scrofula, .....	0	226	226	0	219	0	0	0	7
15.	Carcinoma, .....	0	4	4	0	4	0	0	0	0
16.	Tumors, .....	0	46	46	46	0	0	0	0	0
17.	Atrophy, .....	0	5	5	0	5	0	0	0	0
	3.									
18.	Hydrocephalus, ..	0	3	3	0	3	0	0	0	0
19.	Paralysis, .....	0	66	66	40	25	0	0	0	1
20.	Tetanus, .....	0	8	8	0	0	8*	0	0	0
21.	Epilepsy, .....	0	16	16	0	16	0	0	0	0
22.	Insanity, .....	0	14	14	0	0	14	0	0	0
	4.									
23.	Bronchitis, .....	7	500	507	380	120	0	0	0	0
24.	Pleurisy,.....	0	186	186	186	0	0	0	0	7
25.	Pneumonia, .....	0	20	20	20	0	0	0	0	0
26.	Asthma, .....	0	50	50	0	48	0	0	0	0
27.	Phthisis, .....	0	19	19	0	19	0	0	0	0
28.	Lungs, &c., diseases, .....	4	44	48	0	48	0	0	0	2

\* Mostly of the toes, in old enfeebled subjects.

\* Result unknown.

Nos.	DISEASES.	Remained.	Admitted.	Total.	Discharged.	Relieved.	Abscinded.	Died.	Remaining.	Remarks.
5.										
29.	Teething, .....	0	40	40	40	0	0	0	0	
30.	Enteritis, .....	0	19	19	0	19	0	0	0	
31.	Peritonitis, .....	0	18	18	0	18	0	0	0	
32.	Tabes Mesenterica, .....	0	10	10	0	10	0	0	0	
33.	Worms, .....	0	70	70	70	0	0	0	0	
34.	Ascites, .....	0	51	51	0	51	0	0	0	
35.	Hernia, .....	0	10	10	0	10	0	0	0	Simply cases of incarcerated hernia, reduced by the taxis.
36.	Colica or Ileus, .....	0	182	182	182	0	0	0	0	
37.	Hepatitis, .....	0	83	83	83	0	0	0	0	
38.	Jaundice, .....	0	35	35	35	0	0	0	0	
39.	Spleen, diseases of, .....	8	389	397	237	154	0	0	6	
6.										
40.	Nephritis, .....	0	6	6	6	0	0	0	0	Transferred to hospital for [operation.
41.	Ischuria, .....	0	58	58	58	0	0	0	0	
42.	Diabetes, .....	0	4	4	0	4	0	0	0	
43.	Stone, .....	0	11	11	0	11	0	0	0	
44.	Strictura, .....	0	25	25	0	25	0	0	0	
45.	Kidneys, &c., diseases of, .....	0	50	50	50	0	0	0	0	

46.	7.	Rheumatism, .....	4104	4119	3011	1096	0	0	12
47.		Joints, &c., diseases, .....	100	100	64	36	0	0	0
48.	8.	Carbuncle, .....	30	30	30	0	0	0	0
49.		Phlegmon, .....	1437	1437	1429	0	0	0	8
50.		Ulcers, .....	1920	1922	1912	0	0	0	10
51.		Fistula, .....	63	63	63	0	0	0	0
52.		Skin, &c., diseases, .....	1331	1334	1320	0	0	0	14
53.		Causes not specified, .....	28	28	0	28*	0	0	0
54.		Contusios, .....	267	269	266	0	0	0	0
55.		Wounds, .....	175	179	176	0	0	0	0
56.		Fractures, .....	61	64	61	0	0	0	3
57.		Dislocations and Subluxations, .....	226	226	226	0	0	0	3
58.		Burns and Scalds, .....	97	97	97	0	0	0	3
		Total, .....	19123	19203	16482	2566	22	0	133

Mostly cases of Lepra  
 Vulgaris, Elephanti-asis, Pso-  
 ra, and Herpes.  
 \* Diseases of the eye.

FRED. J. MOUAT, M. D.  
 Secretary.

Medical College, the 1st January, 1847.



## No. V.

*Tabular statement of the number of Patients treated in the Out-Door Dispensary of the Medical College, during each month of the Years 1845 and 1846.*

Number.	MONTHS.	1845.	1846.	REMARKS.
				Of the numbers mentioned in the preceding columns there attended in 1845. 1846.
				Once,* ..... 8546 8137
				Twice, ..... 2778 2897
				Thrice, ..... 1499 1820
1.	January,.....	797	1589	Four times, ... 724 1368
2.	February, .....	525	1573	Five ,, ... 340 1093
3.	March, .....	784	1907	Six ,, ... 243 931
4.	April,.....	735	1623	Seven ,, ... 181 812
5.	May, .....	851	1571	Eight ,, ... 130 628
6.	June, .....	1205	1540	Nine ,, ... 45 504
7.	July, .....	1653	1668	Ten ,, ... 23 413
8.	August, .....	1858	1707	Eleven ,, .. 23 277
9.	September, .....	1710	1402	Twelve ,, ... 7 216
10.	October, .....	1457	1437	Thirteen ,, ... 0 105
11.	November,.....	1560	1540	Fourteen ,, ... 12 0
12.	December, .....	1417	1566	Fifteen ,, ... 1 2
	Total ...	14552	19203	Total ... 14552 19203

FRED. J. MOUAT, M. D.

*Medical College, January 1, 1847.*

*Secretary.*

\* All very severe cases, whether medical or surgical, requiring prolonged treatment and constant attendance, are transferred, at once, to the College Hospital.

Appendix B. No. I.

Half Yearly Return of Sub-Assistant Surgeons educated at the Medical College, from the 1st January to 30th June 1846.

No.	Names.	Date of Rank.	Designation.	Stations and the nature of employment.	Character and qualifications.	Remarks.
1	Omachurn Sett, .....	22d March 1839,	Sub-Assistant Surgeon,	{ Charity Hospital, Burdwan,	Attentive.	
2	Samachurn Dutt, .....	July 1841, ...	ditto, ...	{ Government Dispensary, } Jubbulpore, .....	Both excellent.	
3	Isser Chunder Gangooly, ...	10th Jan'y. 1840,	ditto, ...	Midnapore Dispensary, .....	Active and intelligent.	
4	Rannarain Doss, .....	10th ditto, .....	ditto, ...	{ Government Dispensary, } Cawnpore, .....	Very good.	
5	Jadub Chunder Sett, .....	17th Feby. 1840,	ditto, ...	{ Government Dispensary, } Bareilly, .....	.....	Report not received.
6	Punchanun Sreemoney, ...	10th Jan'y. 1840,	ditto, ...	Moorshedabad Dispensary, ...	.....	Died 4th May 1846.
7	Mr. Hemming, .....	23d April 1841,	ditto, ...	Calpee, .....	.....	Report not received.
8	Callachand Day, .....	20th Jan'y. 1841,	ditto, ...	Bhowanipore Dispensary, ...	.....	Obtained leave of absence for three months on the 18th June 1846.
9	Rajkisto Chatterjee, .....	3d Feby. 1841,	ditto, ...	{ City and Dispensary Hos- } pital, Ghazeepore, .....	Good, and very good qualifications.	
10	Jadub Chunder Dhara, ...	10th Feby. 1841,	ditto, ...	{ Government Dispensary, } Allahabad, .....	Conduct very good and qualifications superior.	

No.	Names.	Date of Rank.	Designation.	Stations and the nature of employment.	Character and qualifications.	Remarks.
11	Chimmun Lall, .....	10th Feb. 1841, {	Sub-Assistant Surgeon,	} Government Dispensary, Delhi,.....	.....	Report not received.
12	Nobin Chunder Paul, .....	10th Feby. 1841,	ditto, ...	City Hospital, Benares, ...	Attentive to his duty and satisfactory.	
13	Mr. Imlay, .....	10th Feby. 1841,	ditto, ...	.....	.....	
14	Nilmoney Dutt, ... ..	24th Feby. 1841,	ditto, ...	Pooree Dispensary,.....	Quite satisfactory.	
15	Buddenchunder Chowdry,	23d Feby. 1841,	ditto, ...	Hoghly Dispensary,.....	Both good.	
16	Moheschunder Nun,.....	22d June 1841,	ditto, ...	{ Government Dispensary, } Muttra, .....	Very attentive and satisfactory.	Discharged from the service on the 18th March 1846
17	Dinonauth Dhur,.....	22d June 1841,	ditto, ...	Mulnoth Factory,.....	.....	Not under supervision of European Medical Officer. -
18	Shamachurn Sircar, .....	16th Feby. 1842,	ditto, ...	Pilgrim Hospital, Gyah, ...	Very attentive to his duty.	
19	Sadachurn Mullick,.....	22d June 1841,	ditto, ...	{ Government Dispensary, } Furrakabad, .....	Conduct good, and well qualified.	
20	Gopal Kisto Goopt,.....	22d June 1841,	ditto, ...	Jail at Sirsa, .....	Not mentioned in the Superintendent Surgeon's Report.	
21	Purmanund Sett,.....	17th April 1843,	ditto, ...	Jail at Bijnore,.....	Ditto ditto.	
22	Mr. F. DeCruze,.....	22d Feby. 1843,	ditto, ...	Civil Hospital, Agra, .....	Attentive and intelligent.	

23	Enayut Hoscin, .....	28th Dec. 1842,	ditto, ...	Pres. Hosp. Lucknow, .....	Very attentive and intelligent.	Report not received.
24	Shamachurn Dey, .....	22d Feby. 1843,	ditto, ...	{ Doing duty with Captain Broome at Jammoo, ... }	.....	
25	Chunder Seekur Holdar,	22d Feby. 1843,	ditto, ...	Jail at Umballa, .....	Not mentioned in the Superintendent Surgeon's Report.	
26	Tarachund Pyne, .....	22d Feby. 1843,	ditto, ...	{ Government Dispensary, } { Mooradabad, .....	Ditto ditto.	
27	Govindchunder Doss, .....	22d Feby. 1843,	ditto, ...	{ Dispensary and Jail at } { Budawon, .....	Ditto ditto.	
28	Purnmessur Doss, .....	10th May 1843,	ditto, ...	Jail at Goorgaon, .....	Not mentioned in the Superintendent Surgeon's Report.	
29	Moheschunder Day, .....	3d May 1844,	ditto, ...	Jail at Kurnaul, .....	Ditto ditto.	
30	Nubbokissore Goopto, .....	6th Nov. 1843,	ditto, ...	.....	.....	Ordered to Medical College for further instruction; proceeding to Calcutta 12th June 1846.
31	Purnmessur Shaha, .....	27th April 1844,	ditto, ...	Military Out-Post, Kotra, ...	.....	Report not received.
32	Dhurmodoss Bose, .....	14th May 1844,	ditto, ...	{ Government Dispensary, } { Agra, .....	Attentive and intelligent.	
33	Mr. L. DeSouza, .....	3d May 1844,	ditto, ...	{ Government Dispensary, } { Shajehanpore, .....	.....	Report not received.

Nos	Names.	Date of Rank.	Designation.	Stations, and the nature of employment.	Character and qualifications.	Remarks.
34	Mr. E. Lazarus, .....	6th Nov. 1844, {	Sub-Assistant Surgeon,	} Pubna, .....	Not mentioned in the Superintendent Surgeon's Report.	
35	Huronath Mitter, .....	Not ascertained,	ditto, ...	Furreedpore, .....	Ditto ditto.	
36	Wuzeer Khan, .....	12th Dec. 1845,	ditto, ...	Domah, .....	Believed good, .....	Joined 1st June 1846.
37	Dwarkanath Chatterjee, ...	27th Feb. 1846,	ditto, ...	Sandoway, .....	Not mentioned in the Superintendent Surgeon's Report.	

(Sd.) JAMES ATKINSON,

*Inspector General of Hospitals, for Secretary Medical Board.*

(True Copy,)

*Fort William, Medical Board Office, 1st July, 1846.*

FRED. J. MOUAT, M. D.,

*Secretary Medical College.*

## Appendix B. No. II.

Half Yearly Return of the Native Doctors who were educated in the Secondary Class of the Medical College,  
from the 1st January to the 30th June 1846.

No.	Names.	Date of Rank.	Designation.	Corps and Detachment to which attached.	Character and qualifications.	Remarks.
1	Mahommed Hossain, .....	3d Novr. 1841, {	Native Doctor,	{ 29th Regiment N. I., Agra,	Good.	
2	Mohammed Kossim Allie,	3d ditto "	ditto,...	{ 8th Irregular Cavalry, Lahore, .....	Attentive to his duty.	
3	Fuzollah Khan, .....	3d ditto "	ditto,...	{ 67th Regiment N. I., Delhie,	Very good.	
4	Alli Bux, 2d, .....	3d ditto "	ditto,...	{ 11th Light Cavalry, .....	Both good.	
5	Bux Khan, .....	3d ditto "	ditto,...	{ 72d Regiment N. I., .....	{ Attentive and active in all his duties.	
6	Chunder Deen Sukull, ....	3d ditto "	ditto,...	{ Garrison of Agra, .....	{ Good and superior in qualifications.	
7	Alli Bux, 1st, .....	3d ditto "	ditto,...	{ 55th Regiment N. I., Meerut,	{ Conduct good and well qualified.	
8	Muzzuffer Hossain, .....	3d ditto "	ditto,...	{ 9th Light Cavalry, .....	{ A good steady, intelligent and attentive man.	
9	Jellal Ooddeen, .....	3d ditto "	ditto,...	{ 24th Regiment N. I., .....	{ Both good.	
10	Shaikh Mungloo, .....	3d ditto "	ditto,...	{ 50th Regiment N. I., Agra, ..	{ Good.	
11	Woodhin Sing, .....	20th June 1842,	ditto,...	{ 4th Light Cavalry, .....	{ Good.	

No.	Names.	Date of Rank.	Designation.	Corps and Detachment to which attached.	Character and qualifications.	Remarks.
12	Kundy Sing, .....	20th June, 1842, {	Native Doctor,	{ Under the orders of the Governor Genl's Agent Assam, .....	.....	Report not received.
13	Summon Khan, .....	20th ditto "	ditto,...	1st Irregular Cavalry, .....	.....	On leave from 2d April to 15th November 1846.
14	Hingun, 2d, .....	20th ditto "	ditto,...	8th Irregular Cavalry, .....	Attentive to his duties.	Report not received.
15	Meer Causeem Ally, .....	20th ditto "	ditto,...	.....	.....	
16	Callee Persaud, .....	20th ditto "	ditto,...	31st Regiment N. I., .....	Good.	
17	Golam Rajah, .....	20th ditto "	ditto,...	{ 52d Regiment N. I., Goo- ruckpore, .....	Good.	
18	Meer Golam Shaw, .....	20th ditto "	ditto,...	.....	.....	
19	Ghassy Khan, .....	20th ditto "	ditto,...	.....	.....	
20	Meerza Bauker Hossain, .....	20th ditto "	ditto,...	11th Regiment N. I., .....	Good and attentive.	Report not received.
21	Oaheed Ally, .....	20th ditto "	ditto,...	37th Regiment N. I., .....	A good assistant.	Ditto ditto.
22	Golam Murtoza, .....	20th ditto "	ditto,...	.....	.....	Report not received.
23	Abdool Wahed, .....	20th ditto "	ditto,...	5th Regiment N. I., .....	{ Well qualified and attentive.	
24	Shaik Elahee Bux, .....	22d Decr. 1842,	ditto,...	Sylhet Light Infy, Sylhet,...	Tolerably good.	
25	Hedyat Ollah, .....	22d ditto "	ditto,...	{ 1st Assam Light Infantry, Ningroo, .....	Very good.	
26	Torab Ally, .....	22d ditto "	ditto,...	Jail at Baraset, .....	{ Conduct good and attentive, qualifications sufficient.	
27	Hingun, 1st, .....	22d ditto, "	ditto,...	{ Sylhet Light Infy. Battn., Cherra, .....	Satisfactory.	

28	Udhin Persaud, .....	22d ditto	ditto,...	Ramghur Light Infy. Battn., { 2d Assam Light Infantry } Battalion, Gowahatty,...	{ Qualifications good, but a little careless. Good and superior.	Report not received.
29	Seetul Sing,.....	8th June 1843,	ditto,...	.....	.....	.....
30	Essory Lall,.....	8th ditto	ditto,...	70th Regiment N. I., .....	Steady and attentive	.....
31	Ghunsam Sing,.....	8th ditto	ditto,...	Station Hospital, Darjeeling,	Good.	.....
32	Khaudan Hossein, .....	8th Aug.	ditto,...	1st Regiment N. I., .....	Good.	.....
33	Sooltan Khan,.....	17th July	ditto,...	Jail at Bauliah, .....	{ Well behaved, active and intelligent.	.....
34	Bissessor Sing,.....	4th Sept.	ditto,...	56th Regiment N. I., Agra, ..	Good.	.....
35	Sahebhad Khan,.....	11th Aug.	ditto,...	2d Grenadier Regiment, ..	Good.	.....
36	Mendhy Khan, .....	29th July	ditto,...	Residency Katmandoo, .....	Good.	.....
37	Jhoomuck Lall, .....	25th Sept.	ditto,...	36th Regt. N. I., Umballa,...	Good.	.....
38	Ameer Khan,.....	8th ditto	ditto,...	{ With a Gang of Convicts, } Barrelly,.....	Good and superior.	.....
39	Oozeer Khan, .....	8th ditto	ditto,...	1st Regiment Lt. Cavalry,	Good,.....	Leave for two months from 23d June 1846.
40	Bhowanee Sing,.....	8th ditto	ditto,...	.....	.....	Report not received.
41	Hedyat Ali Khan, .....	8th ditto	ditto,...	64th Regiment N. I., .....	Very satisfactory.	.....
42	Ramdhone, .....	29th June 1844,	ditto,...	Scinde Ameers, .....	.....	Report not received.
43	Meer Ackbar Ali, .....	12th ditto	ditto,...	Jail at Maunbhoom, .....	{ Steady and attentive, ordinary.	.....
44	Hossein Bux, .....	29th ditto	ditto,...	58th Regiment N. I., .....	{ Attentive and sa- tisfactory, .....	On command with a detach. 58th Re- giment at Indore.
45	Mirza Hossein Bux, .....	29th ditto	ditto,...	{ Native Detachment 1st. } Battn Artillery, Agra, }	Good and middling.	.....
46	Meer Rujeeb Allie,.....	29th ditto	ditto,...	15th Regiment N. I., .....	Good.	.....
47	Meer Ali Bux,.....	29th ditto	ditto,...	.....	.....	.....



No.	Names.	Date of Rank.	Designation.	Corps and Detachment to which attached.	Character and qualifications.	Remarks.
48	Moshaeb Alie, .....	29th June 1844, {	Native Doctor, {	{	.....	Report not received.
49	Shaikh Gouhur Allie, .....	18th April 1845,	ditto, ...	.....	.....	Ditto ditto.
50	Shaikh Yar Ally, .....	23d ditto "	ditto, ...	32d Regiment N. I., .....	Good: little experience.	
51	Luchmun Sing, 1st, .....	23d ditto "	ditto, ...	8th Battalion Artillery, ....	Good and attentive.	
52	Shaikh Mahtaboodeen, ....	23d ditto "	ditto, ...	{ Doing duty with 7th Bn. } Artillery, Meerut, .....	Good and satisfactory.	
53	Lall Khan, .....	23d ditto "	ditto, ...	.....	.....	Report not received.
54	Shaikh Meah Jan, .....	23d ditto "	ditto, ...	Sappers and Miners, .....	Good and satisfactory.	
55	Shaikh Emam Ally, .....	23d ditto "	ditto, ...	.....	.....	Ditto ditto.
56	Shaikh Ilahee Buksh, .....	23d ditto "	ditto, ...	Sappers and Miners, .....	Good and satisfactory.	
57	Doorgachurn Lall, .....	23d ditto "	ditto, ...	4th Light Cavalry, . .....	{ Active, intelligent } and very useful, }	Transferred to the 12th Irregular Ca- valry.
58	Shaikh Hussein Ally, .....	23d ditto "	ditto, ..	.....	.....	Report not received.
59	Shaikh Khoda Buksh, .....	23d ditto "	ditto, ...	29th Regiment N. I., Agra, ..	Good.	
60	Punna Lall, ... ..	23d ditto "	ditto, ...	{ Arracan Light Infantry } Battalion, Akyab, .....	Steady, and a very good man.	
61	Ulleef Khan, .....	23d ditto "	ditto, ...	.....	.....	Ditto ditto.
62	Ramshahae Lall, .....	23d ditto "	ditto, ...	Jail Hospital, Mirzapore, ...	Good.	
63	Mahommed Khan, .....	23d ditto "	ditto, ...	Ditto, Hazareebaugh, .....	Good.	
64	Shaikh Warris Ally, .....	23d Jany. 1846,	ditto, ...	{ 3d Company of Sappers } and Miners, .....	Very good.	
65	Ushruff Ally Khan, .....	23d ditto "	ditto, ..	{ 3d Troop 1st Brigade } Horse Artillery, .....	Good.	

66	Shaikh Abdoollah, .....	23d ditto "	ditto,...	36th Regiment N. I., .....	Good, .....	Transferred to the 13th Irregular Cavalry.
67	Meer Akbur Ally, .....	23d ditto "	ditto,...	Ditto, .....	Ditto, .....	Directed to proceed to Kurnaul on the 8th May 1846.
68	Syed Mahomed Waheed } Ushruff, .....	23d ditto "	ditto,...	Sappers and Miners, Meerut,	.....	Appointed to do duty by G. O. 13th June.
69	Wuzeer Khan, 1st, .....	23d ditto "	ditto,...	Canal Department, .....	.....	Ditto ditto G. O. 23d June.
70	Khosal Ram, .....	23d ditto "	ditto,...	{ Doing duty with the 56th } { Regiment N. I., Agra, ... }	Good.	
71	Meer Bundah Ally, .....	23d ditto "	ditto,...	{ 4th Company 4th Battn. } { Artillery, .....	Good.	
72	Shaikh Lall Mahomed, ...	23d ditto "	ditto,...	33d Regiment N. I., .....	Both good.	G. O. C. C. 28th May 1846.
73	Wuzeer Khan, 2d, .....	23d ditto "	ditto,...	6th Light Cavalry, .....	.....	Directed to proceed to Sirsa 1st June 1846.
74	Shaikh Ruheem Buksh, ...	23d ditto "	ditto,...	38th Regiment N. I., .....	Both good, .....	Transferred to the Hurriana Light Infantry Battalion.
75	Choonee Loll, .....	23d ditto "	ditto,...	38th ditto, .....	Ditto, .....	Recently joined.
76	Shaikh Souban Ally, .....	23d ditto "	ditto,...	{ Hospital wounded men, } { Meerut, .....	.....	
77	Shaikh Nubbee Buksh, ...	23d ditto "	ditto,...	{ Doing duty with the 8th } { Regiment N. I., .....	{ Qualifications appear to be of a very low character, .....	Lately joined.
78	Shaikh Emam Ally, .....	23d ditto "	ditto,...	Civil Jail, Jullunder, .....	Unknown.	

No.	Names.	Date of Rank.	Designation.	Corps and Detachments to which attached.	Character and qualifications.	Remarks.
79	Nuck Chadee Singh, .....	23d Jany. 1846, {	Native Doctor,	} .....	.....	Report not received.
80	Abdool Sumnud, .....	23d ditto "	ditto,...	6th Regiment N. I., .....	.....	Has only been a few days in the Regt.
81	Hingun Khan, .....	23d ditto "	ditto,...	4th Light Cavalry, .....	Good, .....	Transferred to the 12th Irrgr. Cavly.
82	Baboo Ram, .....	23d ditto "	ditto,...	Police Battalion, .....	Good, .....	Transferred to the Governor Gen- eral's Body Guard
83	Luchmun Singh, .....	23d ditto "	ditto,...	{ Hospital wounded men, } Meerut, .....	.....	Recently joined.
84	Jowahur Lall, .....	23d ditto "	ditto,...	Ditto ditto, .....	.....	Ditto ditto.
85	Shaikh Alie Buksh, 1st, ...	23d ditto "	ditto,...	Umballa Jail, .....	Not mentioned.	
86	Fyzoollah Khan, .....	23d ditto "	ditto,...	{ Doing duty with the 29th } Regiment N. I., .....	Promises well, .....	Only been a short time in the Regt.
87	Shaik Faqueer Mohomed,	23d ditto "	ditto,...	Ditto ditto 56th Regt. N. I.,	Good.	
88	Wazeer Alie Khan, 3d, ...	23d ditto "	ditto,...	Ditto ditto 8th Regt. N. I.,	{ Qualifications ap- } pear to be of a } very low charac- } ter, .....	Lately joined.
89	Meerza Noureg Beg, .....	23d ditto "	ditto,...	Hospl. wounded men, Meerut,	.....	Recently joined.
90	Meer Hyder Allee, .....	30th ditto "	ditto,...	Ditto ditto, .....	.....	Ditto ditto.

(Sd.) JAMES ATKINSON,  
Inspector General of Hospitals, for Secretary Medical Board.

(True Copy,) FRED. J. MOUAT, M. D.,  
Secretary Medical College.

Fort William, Medical Board Office, 1st July, 1846.

## Appendix B. No. III.

*Report of the conduct and character of Ceylon Sub-Assistants educated in the Bengal Medical College.*

No.	Names.	Remarks on conduct and character by the Medical Officer under whom each individual served.
1	H. Toussaint, .....	<p data-bbox="683 230 826 1592">During the three months and upwards Medical Sub-Assistant Toussaint has been under my superintendence, he has discharged his duties to my most perfect satisfaction. During the prevalence of cholera here, I have received the greatest assistance from him, his zeal and attention to the patients as well by night as day being most conspicuous.</p> <p data-bbox="842 230 930 965">(Signed) T. R. DYCE, <i>Superintendent of Vaccination.</i></p> <p data-bbox="946 230 1082 1592">I have much pleasure in stating that the conduct and professional acquirements of Medical Sub-Assistant Toussaint gave me the greatest satisfaction during the period he was under my superintendence in the Northern Province. Of Mr. Toussaint's talents, attention to his duties, and correctness of conduct, I can speak from daily personal experience of many months.</p> <p data-bbox="1098 230 1185 965">(Signed) G. S. BEATSON, M. D., <i>Superintendent of Vaccination.</i></p>

No.	Names.	Remarks on conduct and character by the Medical Officer under whom each individual served.
2	J. Wambeck, .....	<p>It is impossible to speak too highly in praise of this young member of the department: he is most zealous in the discharge of his actual duties, and ever ready to engage in extra ones for the furtherance of the public interests. His abilities are of a high order, his industry remarkable, and his practical chemical knowledge has in numerous instances been most advantageously brought to bear on judicial questions of vital importance to the community. Though not part of his assigned duties, he has allotted a considerable portion of his time to assisting Mr. Coopman at the Pettah Hospital, and has on particular occasions attended the Asylum for Orphans. The department is much indebted to him for his never-tiring zeal and exertions wherever he can be useful.</p> <p>(Signed) R. TEMPLETON, <i>Superintendent of Vaccination.</i></p> <p>I have much pleasure in expressing myself in every way satisfied with Medical Sub-Assistant J. Wambeck. He is a young man of very considerable professional attainments and ability, loses no opportunity of improving himself in the different branches of professional knowledge, and attends regularly to his appointed duty, which he performs in the most unexceptionable manner.</p> <p>(Signed) J. M. GRANT, M. D., <i>Staff Assistant Surgeon in charge of Medical Store.</i></p>
3	J. Loos, .....	<p>Has not satisfied my expectations; his abilities are good and his professional knowledge respectable, but he has not shewn that activity and zeal which prompt not only to the literal discharge of duty, but seize every opportunity for acquiring information, for enlarging the sphere of action, and increasing the utility of the department.</p> <p>(Signed) R. TEMPLETON, <i>Superintendent of Vaccination.</i></p>

4	E. H. Wharton, .....	Dismissed for repeated misconduct.
5	C. Kriekenbeck, .....	I have every reason to be satisfied with the manner in which Medical Sub-Assistant Kriekenbeck performs his duty.  (Signed) T. R. DYCE, <i>Superintendent of Vaccination.</i>
6	P. D. Anthonisz, .....	(Signed) G. S. BEATSON, M. D., <i>Superintendent of Vaccination.</i>
7	H. Dickman, .....	I have the highest opinion of both the abilities and acquirements of Medical Sub-Assistants Dickman and Anthonisz. During 8 months at Trincomalee, the former served under my eye, and for the last half year at this station Mr. Anthonisz has been attached to the department here. I have had every opportunity of testing their professional knowledge at post mortem examinations. I have seen Mr. Dickman operate on the dead subject, and have aided Mr. Anthonisz and been assisted by him in operations here, and I consider them both to be able Medical Officers, and fit to take charge of a Regiment at any time; for in addition to surgical and anatomical knowledge they are both well acquainted with chemistry, and with the most modern practice of physic. Mr. Dickman writes English exceedingly well. Mr. Anthonisz does not express himself so correctly, but quite sufficiently so for all professional purposes.  (Signed) J. C. CAMERON, M. D., <i>Staff Surgeon and Superintendent of Vaccination.</i>
		It gives me pleasure to testify that during the period I have been in medical charge of this station (about four months,) I have had every reason to be satisfied with Mr. Dickman's conduct, zeal and intelligence, and although I have had no opportunities of seeing him perform any surgical operations, I feel convinced that he is well grounded in the knowledge of his profession, and that he uses his best endeavours to keep up that knowledge by reading and all other means that present themselves.  (Signed) G. S. BEATSON, M. D., <i>Superintendent of Vaccination.</i>

No.	Names.	Remarks on conduct and character by the Medical Officer under whom each individual served.
8	J. Hollowell,.....	<p>I have reason to report favourably of this Medical Sub-Assistant during the time he was under my immediate direction when Senior Medical Officer and Superintendent of Vaccination at Kandy, as he performed the duties then assigned him to my entire satisfaction. These duties were to detect and visit cases of small pox in the town of Kandy, to have the affected immediately removed to the Small Pox Hospital, and afterwards to ascertain and report that the dwelling of the individuals removed were thoroughly cleansed and whitewashed (especially when this was done by the Police) and also to visit cases reported at a distance, all of which he performed actively, zealously, and in every respect as to have merited my approbation. Having said so much in Mr. Hollowell's favour, it must not be concealed that since he has resumed medical charge of the 4th Division of Pioneers, which has removed him from under the immediate eye of a superior Medical Officer, he has, I regret to be obliged to state, evinced a disposition to reply to some official communications that emanated from the office of the Principal medical Officer in rather a disrespectful style, whether from not sufficiently considering the exact meaning of words or not I will not take upon myself to state at present.</p>
9	L. Wijesinghe,.....	<p style="text-align: right;">(Signed)      ANDREW FERGUSSON, M. D.,  <i>Staff Surgeon, 1st Class.</i></p> <p>Has been so constantly the victim to attacks of fever during the past year, that I can say little relative to the discharge of the duties entrusted to him; he is well informed in his profession, but has subjected himself to repeated animadversions for want of care in making out and forwarding his returns: some allowance may be made for his being yet deficient in knowledge of English, and some for his repeated illnesses, but still he is not wholly excusable for the inconveniences to which, on several occasions, the department has been subjected.</p> <p style="text-align: right;">(Signed)      R. TEMPLETON,  <i>Superintendent of Vaccination.</i></p>

This individual arrived at Paddepolla in the Kandian Province on 19th July, to take medical charge of the 4th Division of Pioneers, but on the 20th of the following month he manifested a spirit of insubordination, after the 1st September he returned all the official documents unopened, and on the 27th of the same month gave notice that on 15th October he would quit the station, whether relieved from the duties or not, and did leave the post before any one was appointed to take charge of the sick. The whole correspondence was subsequently laid before Government, and he was dismissed the service from 15th October, the day he absented himself from Paddepolla.

(Signed)                      ANDREW FERGUSSON, M. D.,  
*Staff Surgeon, 1st Class.*

Died.

Of Medical Sub-Assistant Pyster I have had no reason to complain, until he left his station without leave being granted.

(Signed)                      T. R. DYCE,  
*Superintendent of Vaccination.*

I have every reason to believe Mr Pyster deserving of commendation.

(Signed)                      G. S. BEATSON, M. D.,  
*Superintendent of Vaccination.*

Re-admitted January 1846. No report.

(Signed)                      ANDREW FERGUSSON, M. D.,  
*Principal Civil Medical Officer.*

(True Copies)

FRED. J. MOUNT, M. D.,  
*Secretary Medical College.*

10 R. Andree, .....

11 R. Keane, ..... }  
 12 R. F. De Vos, ..... }  
 13 C. E. Pyster, .....

14 W. C. Ondaatje, .....



## Appendix C.

### STATISTICAL HISTORY OF THE FEMALE HOSPITAL.

*The Midwifery Ward was opened in January 1841.*

Since that time the number of women admitted for delivery has been 244,

viz. in 1841, ... ..	30
1842, ... ..	41
1843, ... ..	37
1844, ... ..	35
1845, ... ..	47
1846, ... ..	48

January and February 1847, ... .. 6, exhibiting an average of 39 cases per annum.

Of the above 244 cases, the following Table shows the classification of Labors :

Natural.	Preme- ture.	Tedious.	Labori- ous.	Preterna- tural.	Compli- cated.	Twins.
171	31	7	14	12	6	3

The following were the CASTES of Patients—Hindus 167, Mahomedans 45, Christians 32 :

#### THE AGES OF THE MOTHERS WERE.

Age.	No.	Age.	No.	Age.	No.
Æt 15 Years, ...	2	24	33	33	0
16 " ...	0	25	39	34	0
17 " ...	2	26	17	35	12
18 " ...	7	27	17	36	3
19 " ...	2	28	8	37	0
20 " ...	28	29	2	38	3
21 " ...	3	30	37	39	0
22 " ...	16	31	0	40	5
23 " ...	7	32	2	42	1

The record of the children's "sex" gives 89 males to 80 females born alive.

In the classified table of Labors, the term "Natural" labor has been used in a somewhat wider sense than authorized by Denman, since a majority of the cases actually exceeded 24 hours in duration, but were otherwise easy and natural in their progress. Of those of this class delivered in Hospital in the regular course, having been admitted some days or weeks previously, it is gratifying to state that not one died from puerperal fever of any sort, although several died soon after delivery from the effects of pre-existing disease.

Of the cases set down as "Premature," many were in fact abortions, occurring at an early stage of pregnancy, either in consequence of accident, or disease, or design. Many if not all of these cases were attended with violent and dangerous symptoms, and the lessons derived from such examples have been of great value and importance to the pupils.

In the class of "Difficult" labors, including tedious and laborious, there will be found a very remarkable disproportion as regards number, and I regret to say a very lamentable want of success in our instrumental practice if compared with other Institutions in Europe. Yet to account for this it may be sufficient to mention, that all the cases of difficult labor treated in Hospital, with but few exceptions, were brought into the wards during parturition and at an advanced stage thereof, and often from a distance either by the Police or the despairing relatives of the patients, as a last chance of life, after being subjected for hours, perhaps days, to the meddlesome and unskilful handling of ignorant native midwives, and when but little hope of success attended any treatment.

The following is a brief detail of the symptoms, treatment and termination of each of these cases as they occurred.

Case 1. *Tedious*—powerless, from long duration of labor, (upwards of three days) the forceps was used. Both mother and child recovered.

Case 2. Under exactly similar circumstances, the forceps was applied. Mother died.

Case 3. *Laborious*—from distortion of pelvis. Head long arrested in the cavity, forceps used. Mother recovered.

Case 4. *Tedious*—from inefficient and partial uterine action, five days in labor, roughly handled, passages dry and inflamed, forceps used. Died next day.

Case 5. Had been 36 hours in labor before admission, incipient inflammation of os uteri and passages. V. S. and Solution Antim. Tart. employed; subsequently the forceps. Mother died.

Case 6. *Laborious*—from inefficient uterine action after two days in labor and most meddlesome handling, forceps used. Mother died.

Case 7. *Tedious*—from great exhaustion and atony of the womb, 48 hours in labor, forceps used. Died.

Case 8. *Laborious*—from irregular action, opiates, afterwards the forceps. Recovered.

Case 9. Several days in labor, passages hot, dry, and inflamed from rough handling, opiates and tartar emetic solution, forceps used. Died.

Case 10. *Laborious*—from pressure of an enormous hydrocephalic head for four or five days, perforated and extracted by crotchet. Recovered.

Case 11. *Laborious*—from size of child's head in a small pelvis, forceps used. Died.

Case 12. *Laborious*—Head retained in utero, the body having been dragged away by the midwife before admission, great exhaustion and putrid discharge, head extracted by crotchet. Died.

Case 13. *Tedious*—exhaustion from seven days' labor, forceps used. Died.

Case 14. Rigid os, and perineum. V. S. and Solution Antim. Tart. for hours, afterwards forceps used. Died.

Case 15. *Tedious*—from rigidity of passages and irregularity of uterine action. V. S. Solution Antim. Tart. and Laudanum at first, afterwards Ergot of Rye. Child and mother saved.

Case 16. *Tedious*—from want of power in a feeble subject, forceps used. Child and mother recovered.

Case 17. *Tedious*—from similar causes, in a better constitution, ergot used. Recovered.

Case 18. *Tedious*—from exhaustion by previous illness, want, and misery. Delivery completed at the end of 40 hours naturally, but mother died in a few hours after.

Case 19. Said to have been 12 days in labor. Uterine action quite suspended, head resting on the perineum; delivered by the forceps,

mother died one hour after from exhaustion. On autopsy uterus found to be scirrhus and perfectly powerless.

Case 20. *Laborious*—from rigidity of os induced by rough manipulation. V. S., tartar emetic solution and laudanum, forceps used. Recovered.

Case 21. *Tedious*—from want of power, ergot of rye, delivery natural after end of 48 hours. Recovered.

Thus it appears that out of 14 cases in which the forceps was employed, only four recovered.

In the third class, viz. "Preternatural" labors or cross-births, there has been much better success, notwithstanding the existence of the same causes to thwart the best endeavours in our power to render aid usefully.

Of the 12 cases recorded, six were *arm* or shoulder presentations, four were *breech* presentations, and two were *footling* cases.

Of the first named six cases two occurred among the inmates of the Hospital, and four were brought into Hospital after having been subject to most injurious treatment, from traction of the arm, by the midwives who thus converted them into most difficult cases. In five of the cases, the operation of *turning* was performed, with perfect success as far as regarded the life of the mother.

In one case "spontaneous evolution" occurred, and the mother recovered. Two children only were born alive, one died from asphyxia in the birth, and four were more or less putrid when born.

In the fourth class, that of "Complex" labors, six cases have occurred.

Of these, two were cases of *hemorrhage* after delivery from irregular contraction or atonic condition of the womb, both recovered. Two cases of hemorrhage arose from retained placenta of which one died. One case of placenta prævia recovered, and one was a very unusual case of complication with a polypus tumor from the cervix uteri.

In the three (3) twin cases nothing remarkable occurred; all the mothers recovered; only two of the children lived, though all were born alive, two were premature.

*Return of Admissions of General Cases in the Female Hospital,  
from the year 1841 to 1846, inclusive.*

MONTHS.	1841.	1842.	1843.	1844.	1845.	1846.
January, .....	22	25	20	29	20	33
February,.....	25	27	27	28	28	41
March, .....	31	28	24	39	21	45
April, .....	24	24	26	29	28	33
May, .....	22	33	31	20	31	41
June, .....	23	27	22	21	31	38
July,.....	21	33	35	25	39	40
August,.....	41	35	33	28	40	41
September, .....	32	41	28	27	39	39
October, .....	24	29	24	43	31	41
November, .....	28	27	30	24	31	34
December, .....	23	22	22	22	27	31
Total,.....	316	351	322	335	366	457

As regards the internal management of the Hospital, it remains to state that the average number of patients does not exceed 24, though there is accommodation for three times the number. The diet and clothing is most carefully superintended by the Nuns whom his Grace the Archbishop Carew has provided for this christian and charitable office; the resident medical graduate, and two pupils are always in attendance at each case, and conduct the labor entirely: an European nurse and two native ayahs live in the Hospital.

It is matter of surprise that with all these inducements, and appliances, the resort to the Hospital does not increase, and that the charitable views of its founders are but so scantily fulfilled.

On the other hand as an Educational Institution, notwithstanding the fewness of the patients it certainly has proved highly successful, and its reputation among the natives, as I have good reason to know, is very great. I could have added about a dozen cases of Difficult and Instrumental labor occurring in different parts of the town to which I have been called by different pupils of the College, who had been summoned by their acquaintances or friends in the moment of alarm.

What has been set forth above, although *statistically* of little value, is sufficient to prove the extreme importance of the study of Midwifery, and the necessity of maintaining in efficiency a practical school for its acquirement in connection with the Medical College.

From what I have myself seen for more than 20 years of the out-door practice of Midwifery among natives of India, I am quite convinced that little good could arise from allowing our students—while yet *students*—to attend cases at their homes, as is done at University College in London, under the superintendence of the Professor. More will be learned by being simply present during one well conducted case in Hospital, than by attendance on a dozen at their homes;—and so far as the great requisites for an accoucheur, viz. composure of mind and manner, steadiness of purpose, and expertness of hand in dangerous cases are acquirable by practice, the attainment of these qualifications seems to me utterly impossible in the filthy, smoky, and crowded hovels, to the straw of which the unfortunate Bengallee females are condemned by native usage in the hour of suffering.

D. STEWART, M. D.,  
*Professor.*

*Medical College, 20th March 1847.*

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**Appendix D. No. I.**

*Programme of the Annual final and general examinations of the English and Military (or Hindustani) Classes of the Medical College of Bengal.*  
 SESSION 1846-47.

DAYS.	ENGLISH CLASS.		MILITARY CLASS.		REMARKS.
	Final Examination.	General Examination.	Final Examination.	General Examination.	
1 Monday, March 15,	{ Written in Medicine and Surgery } { Practical Anatomy and Surgery } { Anatomy &c. (viva voce) ... } { No examination }	Materia Medica }	.....	.....	The final examinations of the English class are conducted by the Government Examiner, assisted by all available Full Surgeons at the Presidency as Assessors. All the other examinations are conducted by the Professors of the Institution, each in his own department. The final results of the latter are decided by the College Council, which body determines the granting of diplomas to the Military class, and the award of prizes and certificates of honour to all classes in the College.
2 Tuesday, " 16,		Medicine ...	.....	.....	
3 Wednesday, " 17,	Surgery ...	.....	.....		
4 Thursday, " 18,	Botany .....	{ Anatomy and Physiology }	{ Anatomy and Physiology }		
5 Friday, " 19,	Chemistry .	{ Anatomy (written paper) }	Surgery ...		
6 Saturday, " 20,	Botany .....	Midwifery .	Medicine ...		

DAYS.	ENGLISH CLASS.		MILITARY CLASS.		REMARKS.
	Final Examination.	General Examination.	Final Examination.	General Examination.	
7 Monday, March 22,	{ No examination	{ Anatomy (practical)... }	{ Materia Medica }	.....	
8 Tuesday, " 23,	Medicine ...	Chemistry .	. . . . .	{ Materia Medica and Anatomy & Physiology for as many days as may be found necessary. }	
9 Wednesday, " 24,	Surgery ...	{ Medical Jurisprudence }	.....	.....	
10 Thursday, " 25,	{ No examination	.....	.....	.....	
11 Friday, " 26,	Midwifery ..	.....	.....	.....	
12 Saturday, " 27,	{ Medical Jurisprudence }	.....	.....	.....	
13 Monday, " 29,	{ No examination	.....	.....	.....	
14 Tuesday, " 30,	{ Materia Medica }	.....	.....	.....	

(By order,)

FRED. J. MOUAT, M. D., Secretary.

Medical College, March 15, 1847.

## Appendix D. No. II.

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### REGULATIONS FOR THE GENERAL EXAMINATIONS.

The following are the rules adopted for the general examinations of the Medical College, Session 1846-47 :—

1. The general examination of the Medical College shall commence on Monday, March 16th.

2. It shall consist of written questions in all branches of study pursued in the College, and in addition the students of anatomy, chemistry, and practical surgery shall be subjected to practical examinations—the first and last in the dissecting rooms, the chemical students in identifying salts and the effects of reagents.

3. The paper shall be set and examined by each professor or teacher in his own department, and be given out to the students specially collected in the great theatre for the purpose, care being taken that the subject matter does not become known beforehand.

4. The ordinary regulations of the Council of Education shall be strictly adopted in these examinations, to prevent and punish unfair practices.

5. The award of prizes shall be in accordance with the results of these examinations.

6. An uniform numerical value of 100 marks shall be attached to each paper—the professor dividing them among the different questions, in the proportion which he may deem due to their difficulty and importance. A perfectly correct and complete answer will obtain the full number of marks attached to the question, and an imperfect answer will obtain a part only of the full number in proportion to its approximation to completeness and correctness.

7. No pupil shall be considered entitled to a Gold Medal, who shall not have obtained at least three-fourths of the whole number of marks allowed for each particular subject

8. Certificates of honour shall be awarded to all candidates who shall obtain more than 50 per cent. of the maximum number of marks allowed : the said certificates to be classed and numbered in strict accordance with the amount of marks obtained.

9. Each day's examination shall commence at 10 A. M. and conclude at 5 P. M. after which all answers must be returned to the professor superintending the examination.

10. Each professor shall conduct and superintend the examinations in his own department.

11. No student shall on any account be permitted to leave the room during the examination, nor shall the pupils not under examination be allowed to remain in the College.

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## Appendix D. No. III.

### EXAMINATION QUESTIONS.

#### FINAL STUDENTS.

1. Detail the anatomy of the shoulder joint, the various directions in which the head of the humerus is liable to be dislocated—the signs by which you distinguish each particular dislocation, and the most prominent source of resistance to reduction in each. Describe minutely the several methods of reducing each kind of dislocation, and the treatment after reduction;—state for how long a time you would consider it necessary to keep the limb at rest after reduction. How is dislocation distinguished from fracture near the neck of the humerus? How would you proceed, should you detect both fracture at that point and dislocation of the head of the bone, and in a case so complicated, what expectation would you have of a perfect cure?

2. What are the signs of stone in the bladder, and by what means are you best assured of its existence there? Describe the various means now had recourse to for the removal of the stone. Detail minutely the anatomy of the parts engaged in the lateral operation, from without inwards. Describe the mode of performing the lateral operation, and the after treatment

3. What are the more common kinds of inflammation of the eye, the tissues more particularly involved in each; the symptoms and treatment of each, constitutional and local? Should you resolve to bleed from the temporal artery, at what point and in what manner would you open the vessel, and how stop the bleeding when necessary?

4. What are the types of fever most commonly met with in Indian practice—their general characters and most frequent local complications? Give in detail the general treatment of fevers, and the treatment best adapted to the several stages of those of the periodical type.

### General Examinations.

#### ANATOMY AND PHYSIOLOGY. (WRITTEN EXAMINATION.)

##### FIRST DAY.

1. Describe the structure of the liver, and the process of the elimination of the bile.
2. Describe the air passages and the structure of the lungs.
3. Describe the process of digestion, from the entrance of the food into the mouth to that of the chyle into the thoracic duct.
4. Give the anatomy of direct inguinal hernia, and mention the parts which may become the contents of inguinal and femoral hernia.
5. Describe the motions of the larynx, and the relations of the muscles producing them.
6. Describe the anatomy of the pharynx, and the manner in which its movements are effected.

#### ANATOMY.

##### SECOND DAY.

A practical examination in the dissecting room, consisting of the dissection and demonstration of various regions and parts of the human body.



## BOTANY.

1. What are the differences between Dycotyledonous and Monocotyledonous plants as regards leaves and stem?
2. Describe the elementary organs?
3. What are compound organs?
4. Describe the structure of a leaf, the difference between a simple and compound leaf, and the various forms of the latter.
5. What are the various forms of inflorescence?
6. Describe a stamen, its parts, and various modes of insertion.
7. Describe the pistil, its structure, and the parts of which it consists.
8. Describe the ovarium and ovulum, together with the common varieties and forms of the latter.
9. What is the meaning of the term didynamous?
10. What is the meaning of the term tetradynamous?
11. Mention the sub-classes of dycotyledonous plants in Decandolle's system, and the characters by which they are distinguished.
12. If you were to meet with a tree or shrub having showy flowers, a regular polypetalous corolla, stamens united by their filaments into a tube surrounding the pistil, anther 1-celled—what class and order would it belong to?
13. Suppose you were to meet with a similar plant having the filaments only partially united at the base, anthers 2-celled—to what order would it probably belong?
14. Suppose you were to meet with a plant of the class *Thalamifloræ*, having smooth shining leaves, with transparent dots and the blade articulated to the petiole, what order would it probably belong to?
15. What class do the Leguminosæ belong to, and what are the principal subdivisions of that order?
16. Mention the peculiarities of Compositæ with regard to structure.
17. Enumerate those orders of *Corollifloræ* most remarkable for milky juice.
18. Likewise those orders of *Monochlamydeæ* most remarkable for the same property.
19. Suppose you were to meet with a *monochlamydeous* plant with milky juice, monœcious or diœcious flowers, and tricoccus fruit, what order would it most likely belong to?

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 PRACTICE OF PHYSIC AND PATHOLOGY.

- I. What are the various ways in which the solid and fluid parts of the body may be altered by disease? State the different forms in which hypertrophy is formed.
- II. Enumerate the several causes of disease; specify the effects of high temperature upon the animal and organic functions of the body, and illustrate this with cases of disease of frequent occurrence in the Hospital.
- III. What are the symptoms of diseases of the brain, enumerating them in the orders of the functions of the brain; and what the rules for guidance in the treatment of Apoplexy.
- IV. What are the symptoms of Cynanche Tonsillaris, and the plan of treatment.
- V. Describe the character of the ulceration of the mucous membrane in cases of Dysentery.

## SURGERY.

1. If a patient is brought into Hospital, and you are merely told he was found lying in the street in a state of insensibility, in which state he still continues, how would you detect the cause of that unconsciousness, and be able to say whether it arose from concussion of the brain, or extravasation of blood within the skull, or bone pressing on the brain, or mere drunkenness?

Detail the symptoms of the above states respectively, the treatment applicable to each, and when you think the application of the trephine is necessary.

2. What do you understand by a Hernia? How do a reducible, an irreducible, and a strangulated Hernia, differ from one another? What diseases may an oblique inguinal Hernia be mistaken for? How may such mistakes be avoided? State how you would treat a case of strangulated Hernia; under what circumstances you would operate, and what description of cases you consider most dangerous unless quickly relieved by the taxis or an operation?

3. Give the different dislocations of the Hip Joint, their symptoms, and modes of reduction?

4. How would you treat a case of fracture of the lower fourth of the fibula, with a dislocation of the tibia inwards?

## OBSTETRIC MEDICINE.

1. What are the changes which take place in the *ovaries* during menstruation, and from impregnation?

2. What signs of pregnancy are considered *positive*, and what are *doubtful*?

3. Describe the differences found on manual examination of the os and cervix uteri before impregnation, and at various periods of pregnancy.

4. What are the symptoms of *exhaustion* during parturition, its various causes, and the proper treatment?

5. What are the circumstances under which it is advisable to bring on premature labor, and what are the various modes of effecting this?

6. What are the designations and the causes of the various uterine hemorrhages which occur before and during parturition, and what are the established modes of treatment applicable to each?

## MATERIA MEDICA AND THERAPEUTICS.

1. Enumerate the different remedies used in the treatment of acute and chronic Dysentery—Cholera—Intermittent and Remittent Fever. Specify the forms and quantities in which they are respectively administered; the sources from which they are obtained; their composition, properties, and modes of preparation, as well as the special object for which each is given.

2. Mention the medicinal substances obtained from the under-mentioned natural families—their active principles, properties, uses, and doses.

Apocynæ.		Umbellifera.
Polygonæ.		Liliacæ.
Laurinæ.		Euphorbiacæ.

3. Enumerate the principal Cathartics, officinal and indigenous, with which you are acquainted. State the orders in which they are arranged, and detail the peculiar effects and uses, as well as doses of each.

4. Detail the constituents of the various preparations of Opium contained in the London Pharmacopœia, and specify the amount of opium contained in a given quantity of each.

5. Specify, in as detailed a manner as you can, the physiological differences in the emetic effects of Tartar Emetic, Sulphate of Zinc, Sulphate of Copper, Ipecacuanha, and Squill. Mention the dose of each, and the cases for which they are respectively best adapted.

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### MEDICAL JURISPRUDENCE.

1. Specify the certain and uncertain signs of death in as detailed a manner as you can.

2. Independent of climate, what are the principal sources of disease and mortality in Calcutta, and what the Medical Police regulations which should be enforced for their prevention?

3. What are the usual causes of death from drowning, and the post mortem appearances you would expect to find after each?

4. What are the best means of resuscitating the drowned; the length of time after complete submersion that you may expect them to be attended with success; and the amount of perseverance in their application which ought to be practised?

5. Enumerate in detail the causes of death from hanging, the post mortem appearances found after each, and the circumstances that would chiefly guide you in determining whether the death was the result of accident, suicide, or homicide?

6. How would you distinguish in the case of a person found hung, whether the suspension occurred before or after death?

7. What are the appearances which indicate recent delivery, as shown during life and after death.

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### CHEMISTRY.

1. What is the process for preparing Ammonia; and what reactions take place in it, viewed according to the common, and also according to the Ammonium theory; give its composition, properties, and tests.

2. Give the theory of the reactions of chlorine with hydrogen, with potass, with lime, and with zinc, and the nature of the resulting combinations.

Mention the names, composition, and properties of the combinations of chlorine with oxygen.

State what occurs when hydrochloric acid acts on iron, on magnesia, and on nitric acid; and the nature of the resulting substances.

3. Describe the process and reactions in making chloride of barium from sulphate of barytes.

4. Describe the processes used in manufacturing sulphate of magnesia, and give the theories of these.

5. What are the tests of protoxide of iron, and also of the peroxide?

6. State the process, appearances, and theory, in making Ammonio-sulphate of Copper.

7. What is Salicine, whence and how procured, and what are its properties and tests?

8. Give the best processes for preparing Strychnine, with their theories, and its tests.

REPLIES

OF SOME OF THE

MOST PROFICIENT STUDENTS.

The replies are reprinted verbatim from the MS. of the students, every error of grammar and fact being retained.

It has not been deemed necessary or advisable to reprint the answer in all subjects, as they are very voluminous, and would occupy an undue portion of the report.

A few only have been selected, from senior and junior subjects.

Readers in Europe must remember that the answers of the native students are not only written in a given time, but also in a foreign language, with which none of them are very intimately acquainted when they commence the study of medicine:—the standard of preliminary acquirement being, for many reasons, lower than could be wished.

## Replies of Final Students.

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*Answer to Question 1.*—The parts hard and soft which enter into the anatomy of the shoulder joint, are—1st. The clavicle, this is an *f* shaped bone extending from the sternum to the scapula; it may be divided into a sternal extremity which is thick and more round than the acromial end; its articulation with the upper bone of the sternum has an interarticular fibro-cartilage with two synovial membranes; the ligaments are an anterior, a posterior and an interclavicular, which extend across the upper part of the sternum. The acromial end of the clavicle is flat from above downwards and articulates with the acromion process of the scapula, and has a superior and inferior acromio-clavicular-ligament: it gives insertion to the deltoid below and trapezius above.

The scapula is a triangular bone situated on the upper and posterior part of the thorax: it may conveniently be divided into two surfaces, three borders, three fossæ, three angles, and three processes: the posterior surface is divided into two by a ridge called the spine or crista of the scapula, the intervention of this ridge divides the fossæ into two surfaces; the upper or smallest one gives insertion to the supra scapular muscle, the inferior division is the largest and gives insertion to the supra spinatus muscle; the ventral surface or scapular fossa looks towards the ribs, and gives insertion to the subscapular muscle.

The superior or smallest border of the scapula has a lunated notch at its external or glenoid extremity: this notch is converted into a foramen by a ligament which I believe is called the transverse ligament, at all events it is one of the ligaments proper to the scapula: through this notch or foramen passes the supra scapular nerve, the omo-hyoid is attached here, the artery passing external to it. The inferior border of the scapula is larger and more round than the superior; at its posterior or vertebral end there is a flat rough surface which gives insertion to the teres major, and a little more towards the glenoid cavity is attached the teres minor, through these two muscles runs the long head of the biceps to be inserted into the inferior part of the glenoid cavity. The posterior or vertebral border of the scapula is thin and edged, but nevertheless gives insertion to several muscles, as the rhomboideus major and minor, and I believe the serratus magnus (I may be mistaken in the name of the last named muscle.) The spine or crista of the scapula stands not unlike a dial, its external extremity flattens out into the acromion process; the spine gives insertion at its under border to the deltoid, and its upper border to the trapezius.

The glenoid cavity is a shallow depression which in the fresh state is deepened by the glenoid ligament, and on close examination appears to arise by a splitting of the long head of the biceps; this depression (its greatest diameter from above downwards) articulates with the head of the humerus: in its fresh state it is covered with cartilage and lined by the synovial membrane proper to the shoulder joint.

The coracoid process is a projection from the under part of the neck of the scapula, it is a curved projection which gives insertion to one head of the biceps, the coraco-brachialis and pectoralis minor.

As the question involves merely the upper extremity of the humerus, I shall confine myself to that portion. It is surmounted by a globular head, with a constricted part round it which is called the *anatomical* neck of the bone, the surgical portion being inferior to that. The upper extremity of the bone is divided into two unequal tuberosities by the

bicipital groove, through which passes the long head of the biceps; the anterior margin of the bicipital groove gives insertion to the pectoralis major, and the posterior margin to the united tendon of the latissimus dorsi and the rhomboideus major, in the centre of the insertions of these muscles will be found the whole of the vessels and nerves distributed to the arm

Of the two tuberosities the anterior and smaller one gives insertion to the subscapular muscle; the posterior or largest one is divided into three facets, which taking them from above downwards give insertion to the supra scapular, infra scapular and rhomboideus minor muscles.

The ligaments of the shoulder joint are—

1st. The capsular. This ligament is attached round the margin of the glenoid cavity above, and round the constricted portion of the humerus below, it is extremely loose allowing all that extensive movement exercised by the shoulder joint: the anterior part of this ligament is somewhat stronger by a strong fasciculus of fibres which runs from above downwards.

2d. The next ligament is the glenoid ligament, which as mentioned before, assists in deepening the shallow cavity.

3d. Coraco humeralis is a thin band of fibres which run from the base of the coracoid process to the inferior part of the neck of the humerus.

4th. The coraco-acromial ligament is one proper to the scapula; it stretches across from the acromion process to the coracoid: this ligament I believe mainly contributes in keeping the head of the humerus from being dislocated upwards.

The shoulder joint is lined by a synovial membrane, which after covering the head of the humerus is reflected on to the capsular ligament, and after that it covers the glenoid cavity. As the long tendon of the biceps runs through the joint, it is covered over by a process of the synovial membrane.

The head of the humerus and the glenoid cavity are likewise in the fresh state covered over with cartilage.

The head of the bone is liable to be dislocated in three directions. The 1st and most common kind into the axilla, 2d, anteriorly on the second rib. 3d, posteriorly on the dorsum scapulæ.

Dislocation into the axilla, the only one I have seen, may be distinguished by a prominence of the acromion process, a flattening of the deltoid, the head of the humerus can be felt in the axilla, and the elbow is supported by the patient, who endeavours to keep it out as much as possible, so as to prevent pressure on the axillary plexus of nerves; the limb is likewise numb and immobile

Dislocation anteriorly may be distinguished by immobility, head of the bone felt on the 2d rib, and elbow looking backwards with flexion of the biceps muscle

Dislocation on the dorsum scapulæ I believe is very rare, nevertheless it is described in books: the elbow looks anteriorly, head felt on the dorsum of the scapula, and I believe there will be a depression of the deltoid.

The most of these dislocations are easily reduced if got early and almost immediately after the accident, the most prominent source of resistance being the deltoid, and those muscles arising from the scapula and inserted into the head of the humerus: in fact were it not for the auxiliary aid of these muscles surrounding the capsular ligament, it would never be retained in its situation, for I have witnessed a case when all the muscles connected with the joint were atrophied, and a permanent dislocation was the result.

I shall first describe the method of reducing dislocation into the axilla, for the operation has been frequently performed by me; in fact no later than last night, I reduced one in company with a friend.

Should the accident be a recent one, place the patient on a table in the recumbent posture, place yourself on the dislocated side with your boots or shoes off; place the heel of that foot which is next to your patient into his axilla, seize him by the wrist and make extension, at the same time bringing the limb more towards the centre of the trunk: this is generally sufficient to send the bone in, with an audible snap.

Next mode of reducing dislocation is to place the patient in a chair, similar to one used for the operation of depression of cataract, the back part of the chair is placed under the axilla of the patient, and extension made by seizing the lower end of the humerus. An assistant places the fingers of both of his hands into the axillary space and his thumbs on the acromion process, and in that way lifts the head of the bone out of the axilla into the glenoid cavity.

Should the accident not be a recent one, we are obliged, if the patient is plethoric, to abstract blood, or resort to the administration of tartar emetic to produce nausea, which has the effect of relaxing the muscles sufficiently—many resort to warm baths. The next requisite is the aid of pullies, which may be applied in the following manner; a wet bandage is rolled on the arm immediately above the elbow, over this is applied the lax (either by apparatus used for the purpose) or a bandage twisted in such a manner as to take a firm grip of the arm. (I could do this part of the operation better than I can describe it.) To this portion of the apparatus is applied the extending force by the aid of pullies. The counter-extending force being placed round the body in the form of a broad and strong sheet, which will make sufficient pressure on the scapula to retain it in situ.

The next form of dislocation must be reduced by applying the extending force in the direction in which the limb has been dislocated, for instance if the head of the bone is dislocated anteriorly the olecranon looks back, and we must make extension in the same axis, and vice versa, if the head of the bone is dislocated on the dorsum scapulæ.

After the limb is reduced, the arm must be bandaged to the side of the chest, and the elbow raised, so as to keep the head of the bone in contact with the glenoid cavity—the patient must be kept quiet in bed if there is pain in the part with pyrexia and a quick and accelerated pulse, a brisk purgative of calomel and jalap must be given after V. S. Cold applications of ice in a bladder must be kept over the joint. Should the patient complain of much pain, let a few leeches be applied at the most painful point.

The mischief resulting from these dislocations is seldom of such a nature as to require rigorous antiphlogistic treatment. There may be cases in which the mischief or violence done to the soft parts has been severe, but I have never seen any. The greatest evil which results from a dislocation of this nature, is its aptitude to recur; I have known numbers of soldiers who could at will dislocate the joint, so as to avoid a drill or a parade.

After 8 or 10 days, or more properly after cessation of all pain and uneasiness, the patient can be allowed to go about, I am not aware of any distinct rule to guide us in this respect, for one patient may be able to return to his work after 24 hours, and another be kept in bed for a fortnight: we must only be guided by a proper knowledge of the case and the state of the joint.



Should the neck (surgical) of the humerus be fractured, there is preternatural mobility, shortness of the limb, crepitation on rotation, the deltoid is not depressed and the acromion is not prominent.

Should accidents of this nature be complicated, that is, should there be a dislocation and a fracture at the same time, our first duty is to attempt reduction of the dislocation; this by proper tact, patience, and manipulation may be accomplished, and the fracture treated afterwards; but should the Surgeon be unable to reduce the dislocation he must only endeavour to cure the fracture: and I believe after union of fracture it would be utterly hopeless to attempt to reduce the dislocation.

2. A patient comes to you and states that about a month ago he had severe pain in the region of the left kidney, that this pain extended down to the testicle and along the anterior part of the thigh, and that the testicles were retracted, that all of a sudden this pain ceased, but that other symptoms came on, namely, there was incontinence of urine from the presence of a foreign body keeping up a slight irritation, and the bladder not being habituated to its presence, sometimes he passes urine very freely and in a full stream, when suddenly this stream is checked by the stone falling on the mouth of the bladder—pain is also referred to the glans penis.

I do not think the question demands the several kinds of calculi, their tests, and the class of individuals they are found in, and the tests for each sort, otherwise I should have entered into a more detailed account.

The most certain and unequivocal sign of stone in the bladder is by ascertaining its presence by the introduction of the sound, and no surgeon is justified in giving an opinion unless he has previously done so.

The surgeons of the present day either perform the lateral operation; or that of lithotrity, I believe that is the name, by which the patient is secured on a table, and an instrument introduced into the bladder, and water injected into the bladder through the urethra; this instrument is so constructed that by turning a screw at the extremity in the operator's hand, the three divisions of the opposite extremity open out, and by a little tact and manipulation the stone can be seized and crushed. I have seen this operation performed both successfully and unsuccessfully; the principal danger attending it is seizure of a portion of the mucous membrane of the bladder between the stone and instrument; the next is the presence of the sharp angular little crushed stones which remain in the bladder, producing irritation of the mucous membrane and ending in cystitis.

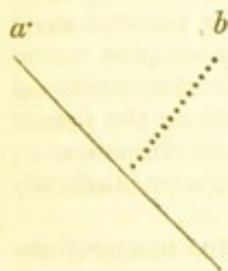
On making a section for the lateral operation, the parts divided are 1st the skin and fascia, this brings us upon a triangular space, the apex of which is above and formed by the junction of the erector penis and ejaculator urinæ, its sides are formed by these two muscles, and the perineum, and the base of this triangular space may be defined by a line drawn from one tuberosity of the ischium to the other, and the transversus perinei muscle lies across it: after having divided the deep and superficial fascia we come upon the layer of muscle, and their division commences at that point where the staff recedes from the finger, winding round the triangular or subpubic ligament: the second incision will divide the transversus perinei and some fibres of the sphincter ani, and compressor urethræ, after this the groove of the staff is felt for and the scalpel passed into it through the posterior portion of the membranous portion of the urethra, the knife must now be lateralized outwards, and two-thirds of the left lobe of the prostatic portion of the urethra divided.

The parts to be avoided in this operation are, 1st, internally the rectum bulb of the urethra, and artery of the bulb; externally, the internal pudic artery which after branching off from sometimes the internal iliac, at other times from the gluteal, winds round the spine of the ischium,

enters the lesser ischiadic notch, and runs along the internal part of the tuberosity and ramus of the ischium; the transversus perinei artery is given off by this.

When proceeding to operate the surgeon must first immediately before he proceeds to tie the patient, ascertain the presence of stone in the bladder by sounding; after this he withdraws the sound, and passes a staff with a lateral groove; it is preferable to pass the staff previous to tying up the patient, for change of position may be requisite to enable the operator to pass the catheter with facility, after this the patient must be bound by approximating the palms of his hands and the soles of his feet together on each side. An assistant is directed to hold the staff perpendicularly and in the central line; and holding it up against the pubic arch the operator sits in front, ascertains the size of the pelvis, its capacity, and commences his incision on the left side of the raphe, some say an inch above the margin of the anus—but I have been taught to commence the incision at that point where the staff recedes under the pubic arch.

This incision is carried downwards and outwards towards the ramus and tuberosity of the ischium for about  $2\frac{1}{2}$  inches or 3 inches according to the capacity of the pelvis, but mind the internal pudic artery—this



a. First incision,  
b. Course of the point of the scalpel for the second incision.

incision divides the skin and superficial fascia after which the groove of the staff is ascertained by the forefinger of the left hand of the operator, and the scalpel carried with its cutting edge downwards from the centre of the first incision till it reaches a point on a level with the commencement of the first incision. I am not aware if I am sufficiently plain on this point, and I have endeavoured to illustrate it by the aid of the accompanying imperfect diagram. The forefinger of the left hand must now pass down in order to keep the *bulb of the urethra*, and the rectum out of the way, the knife is then lateralised to finish the incision—the forefinger of the left hand is now passed into the bladder, the presence and situation of the stone ascertained, a pair of lithotomy forceps according to the discretion of the operator is passed along the edge of the finger, the forceps being closed; the operator must now endeavour to get one blade of the forceps in such a manner under the calculus, so as to avoid catching a portion of the bladder with the forceps; when the calculus is once firmly held within the forceps, it can be drawn by gentle extension made in the direction or axis of the outlet of the pelvis. I forgot to mention that for 24 hours before the operation the patient should be desired to retain his urine.

After the stone is withdrawn the presence of a second stone should be ascertained; but the appearance of the first generally indicates the presence or nonpresence of a second stone—that is, a rough stone indicates that it was solitary, whereas a smooth stone with distinct facets indicates the presence of a companion.

The after treatment is to prevent inflammation from coming on. The patient is to be kept in the recumbent posture with his knees flexed and kept together, the wound covered over with a piece of lint or simple dressing, some recommend keeping a gum elastic catheter in the bladder through the incision, but this should always be carefully watched and withdrawn at least once a day, for the presence of a foreign body in the bladder always affords a very good nucleus for the red sandy or lateritious deposit of uric acid.

*Answer to question 3rd.* The eyes are subject to different kinds of inflammation according to the coats or tissues which may be complicated. Such as conjunctivitis or inflammation of the conjunctive. Iritis or inflammation of the iris and internal tunics. Retinitis or inflammation of the retina.

1. *Cotarrhal ophthalmia.* This form of the disease is generally brought on from exposure to cold. The palpebral portion of the conjunctiva being first affected, or it may run on by communication from the schneiderian membrane through the nasal duct. The symptoms are a watery discharge of tears from the eye, generally of a scalding character, attended with little pain. This may be treated antiphlogistically by the application of a few leeches, fomentation, gentle aperients, and low diet; after inflammation has been subdued weak astringent lotions of the nitrate of silver or sulphate of copper.

The acute or Egyptian ophthalmia is a more formidable disease, for it may run on to destruction and total loss of sight in 12 hours. The symptoms are pain over the brow and in the eyeball, great intolerance of light, redness of the whole of the conjunctiva, sometimes the palpebral portion presenting a chemosed appearance, resulting from the infiltration of serum in the submucous cellular tissue. These may be often pyrexia with a full and quick pulse, secretions deranged and want of appetite. The treatment in this must be decisive or not at all. The patient must be bled from the arm in the erect posture, leeches to the temples, warm fomentations to the eye are more agreeable and soothing; others recommend the cold applications, purgatives of calomel and jalap to clean the primæ viæ, administration of solution antimon. tartar. to promote diaphoresis; after inflammation is subdued, the use of any astringent lotion or Guthrie's ointment is used.

This form of ophthalmia runs on to discharge of purulent matter from the eyes, a chemosed state of the conjunctiva round the cornea, and ultimately ulceration and sloughing of the cornea itself, a portion of the aqueous humor of the eye floats out and prolapsus of the iris takes place.

There is frequently a chronic form of conjunctivitis in which there is a congested state of the blood vessels of the conjunctivæ, this must not be treated antiphlogistically, gentle aperients with small alterative doses of blue pill with the application of Guthrie's ointment, are generally considered sufficient.

*Iritis.*—This is a more formidable disease, and may be mistaken for conjunctivitis by a superficial observer. In this disease not only the iris but the whole of the internal tunics may be involved.

The symptoms are great intolerance of light, deep seated pain in the eye, the iris looks muddy, and on being compared with the other eye a great difference is observed; the iris loses its lustre and bright appearance, and is incapable of reflecting back the rays of light which fall upon it through the cornea. In this disease the conjunctiva is almost always involved; and the two different sets of blood vessels may be distinctly seen; those of the conjunctiva running in a reticulated manner on the surface of the eye, of a dark red color, and are moveable if the finger be applied. Beyond these vessels and on the surface of the sclerotic are to be seen another set of vessels running in a radiated direction from the circumference to the centre; these vessels are of a pink color showing the presence of arterial blood; around the cornea at the same time a distinct pink zone is perceived. This disease if not treated briskly may end in total loss of sight; there is effusion of serum both on the anterior and posterior surface of the iris, which may end in synæchia

anterior or adhesion of the iris to the cornea, or synœchia posterior adhesion of the uvea to the capsule of the lens. There may be total loss of vision by closure of the pupil, which would call for the operation of artificial pupil. There may be irregularity of the pupil whereby the pupil loses its circular form, or there may be an organised shred of lymph thrown across the diameter of the pupil, and thus produce a contraction of that opening.

The treatment must be strictly antiphlogistic—bleed the patient if he is plethoric, apply leeches viij or xij to the temple foment the eye frequently, act on the bowels with calomel gr. vi. aloes gr. v or x, followed up with a dose of compound jalap. The administration of mercury has a decided effect on inflammations of the internal tunics: in the first place it prevents a deposition of serum or fibrin on the surface of the iris, and secondly, it has the power of absorbing any such desposition. After inflammation has been subdued the use of astringent drops should be used—green shade over the eye.

*Retinitis, or inflammation of the retina is the third form.* In this the symptoms are great intolerance of light; pain deep-seated in the head, the pupil contracted from great sensibility of the retina—flashes and sheets of fire appear before the eye, pyrexia is very often present, attended with deranged secretions. *Treatment*—all light should be excluded, the patient should be kept in the dark, and treatment similar to that in iritis. If this inflammation is not checked it will eventually lead to amaurosis, or gutta serena.

*Amaurosis.* This disease may appear under two opposite conditions of the retina, and from functional causes.

In the latter it may proceed from pressure on or atrophy of the optic nerve, or it may proceed from the eye not being used in a proper manner. I remember having assisted Professor O'Shaughnessy in the operation for squinting, where the external rectus muscle of the left eye was removed from its attachment to the sclerotic. The operation was performed on a young European woman, and previous to the operation the woman was not aware that the retina of that eye was perfectly insensible, although after the operation when the eye obtained the proper axis of vision, she became aware of it and recovered.

Amaurosis from constitutional causes may result from an over-excited state of the vessels of the part, it being supplied with an over abundance of blood; in the other form it proceeds from anæmia or a want of blood to the parts.

The treatment in these cases must be totally different; the one must be treated antiphlogistically, the other by good diet and gentle stimulants.

There are two other forms of blindness resulting from an insensible state of the retina—the one hæmarolopia, or day blindness, and nyctalopia or night blindness. The natives of this country, particularly Hindoo Sepoys of the Upper Provinces, are very subject to the former. I think it generally results from exposure at night, and improper food, for I have invariably found, nay it is too well known among the natives themselves, that animal diet removes it—those who will not partake of this diet from prejudices of caste generally recover by the administration of a purgative, and the application of stimulating drops of nitrate of silver.

Should it be considered necessary to bleed from the temporal artery, the anterior branch may be made choice of about an inch posterior to the external angular process of the frontal bone; the artery should be retained in its situation, so as not allow it to slip, and the artery *half* divided with a lancet, this will allow the blood to flow freely out; and a complete division of the artery enables it to retract into the cellular tissue, the mouth contracts and the bleeding ceases. Pressure or ligature I don't believe are ever resorted to.

*Answer to question 4th.* The most common forms of fevers met with are—

1st. *Continued fever.* This is generally ushered in with rigors, pain in the back and loins, pain in the head, face flushed, skin hot and sometimes burning, a quick and accelerated pulse, nausea and vomiting, anorexia, bowels constipated; the first impression of this form of fever being on the nervous system, the second, on the vascular system, and the third on the organs of secretion. Should the fever continue delirium sets in, the skin continues hot and burning, a diarrhæa sets in, and the whole of the mental faculties appear disordered. About the latter stage of the disease the tongue becomes black, there is low muttering delirium, picking of the bed clothes, patient sinks in bed, signs of extreme debility, and the patient dies from coma. On dissection the head is generally found congested, there is often effusion of serum in the ventricles or on the surface of the arachnoid. Lungs found congested. In the abdomen the glandulæ solitairæ and aggregatæ are found diseased, small patches of ulceration and sloughing on the surface.

At the commencement of the disease bleed freely from the arm, with local applications of leeches to the temples, an emetic is often administered to clear the stomach, followed up by a few brisk purgatives to clean the alimentary canal.

The solution antimon. tartar, can be administered to promote diaphoresis with the administration of small doses of calomel for the purpose of salivation. The skin should be sponged with warm vinegar water, or the patient may be placed into a warm bath.

Should typhoid symptoms come on, the patient must be well watched, and now it will be necessary to keep up strength with small doses of wine and sago, cleanliness, wholesome air and good nursing, surface of body to be frequently sponged, and small doses of quina administered with the wine.

2nd. *Intermittent fever.* This may be of the quotidian, tertian or quartan type, as generally found in this country. I shall take up the quotidian and attempt to describe it. The fever in most cases is ushered in by rigors, coldness of the surface of the body, great thirst; after a short time a reaction takes place, the skin becomes warm, face flushed, vessels of the face and head turgid. Pulse full and quick, this is the hot stage of the fever; after this the patient perspires freely, falls asleep, and gets up quite well with a complete intermission of the fever. This form of fever has the longest stage and the shortest intervals. Of itself it is not dangerous, but its continuance for a length of time will involve other organs, such as congestion in the spleen or of the portal circulation producing disease of the liver, or it very frequently terminates in dropsy, which can I think be only accounted for by extreme fullness of the portal circulation, causing an exudation of serum through the walls of the vessels.

In the cold stage of this fever some have recommended bleeding; I have seen the plan tried on about a hundred Europeans but unsuccessfully. I believe opii. gr ij. or tinct, opii. gt. xl. is preferable. In the hot stage the patient should be covered up to promote diaphoresis, when there is complete intermission the administration of quina gr. ij. iii, or iv. according to the age or sex of the patient is recommended.

Should there be local complications of the spleen, liver or abdomen, we must endeavor to remove congestion by the application of a few leeches.

3d. *Remittent fever.* In this there is never a complete intermission of fever; it is ushered in with rigors, or without it, the patient feels drowsy. Pulse full and hard, bowels constipated, skin hot and dry. This I believe to

be the most severe form of the disease, the stage of remission follows so quickly upon the heels of the hot stage, that one must be very cautious in the treatment of this form of the disease. V. S. must be resorted to but with extreme caution, stage of collapse is liable to follow rapidly, out of which it is extremely difficult to recover the patient.

*Treatment.* After clearing the primæ viæ administer calomel grs. x. opii gr. i. twice a day during the remission. Calomel grs. iv. chets — grs. iv. and ipecac, grs. ij. ter. in die. Should the patient fall into collapse administer wine and stimulants, with stimulating frictions to the extremities, with small doses of quina.

As in the intermittent form local congestions of the spleen and liver should be looked to, and during the hot stage cerebral congestions.

J. SHEETZ.

*Answer 1st.*—The shoulder-joint is formed by the head of the humerus and the glenoid cavity of the scapula. Round the head of the humerus we see the capsular ligament, which is also inserted round the neck of the glenoid cavity. This ligament is very loose, and does not keep the two bones in perfect apposition, but there are muscles which perform this function. As the rim of the glenoid cavity is not very deep but shallow, we have a provision for this, and this is answered by two slips of semicartilaginous and fibrous bodies called the glenoid ligaments; these two are inserted round the margin of the glenoid fossa, and serve to deepen it. The joint is also lined by the synovial membrane, and like the same in other places it is a double (serous) membrane, and between its reflections the long head of the biceps tendon passes. Besides these ligaments we have two other ligaments indirectly protecting the shoulder-joint, viz. the conoid and trapezoid ligaments, these are stretched from the clavicle and acromion process over the coracoid process. As the only proper ligament which keeps the head of the bone in the glenoid fossa is capsular, which is loose and not capable of keeping the joint in perfect contact, we have certain muscles which execute this office. Amongst these muscles we may notice particularly the supra spinatus, the infra spinatus, the subscapularis; then the deltoid, the teres major and minor muscles, the latissimus dorsi and the pectoralis major, all of which muscles are inserted round and in the vicinity of this joint. We have also the long tendon of the biceps, and the long head of the triceps (these as they arise from the upper and lower edge of the glenoid fossa, are supposed by some anatomists to give the ligaments called glenoid ligaments noticed before) strengthening the joint. The coraco brachialis muscle also yields additional support; and last of all the strong muscle the deltoid is a principal agent in the strengthening of the joint.

*With regard to the various dislocations.*—There are three principal directions in which the head of the humerus is liable to be dislocated. These are, downwards into the cavity of the axilla, backwards over the spine of the scapula, and forwards under the pectoralis major muscle. There is also a fourth dislocation described, viz. a partial dislocation of the head of the bone, on the fossa itself. The humerus cannot be dislocated upwards like the femur, because here we have very strong provisions, viz. the acromion process, the coracoid, the conoid and trapezoid ligaments, and several muscles which have a constant tendency to keep the head of the bone down.

*Signs of each dislocation.*—1st. Dislocation into the axilla. In this form of dislocation first we see a lengthening of the limb, (and this is one of

the two exceptions, where this very thing occurs in luxations,) then we observe the immovable state of the limb, the arm cannot be adducted, and the elbow sticks out. With these symptoms we notice the displacement of the head of the bone, and which in consequence occasions a flattening of the natural rotundity of the deltoid, and a pitting under the acromion process. The head of the bone can be felt in the cavity of the axilla, and there as it rests and presses on the axillary plexus of nerves, causes great pain and suffering, and a numbness of the fingers.

*Dislocation on the Dorsum Scapulae.*—2d. The grand feature of this dislocation is the feeling of the head of the bone, and the extreme prominence which it causes. With these we have immobility and certain other marks of luxation.

*Dislocation forwards.*—3d. In dislocation forwards under the pectoralis major we have many of the symptoms of the first class present, such as an abducted elbow, and any attempt at adduction causes extreme pain, and proves abortive unless reduced.

The head of the bone can be felt, and this is the main feature of this form of dislocation.

In the fourth form the symptoms are very slight, the arm is supinated and abducted.

*Sources of the resistance.*—The most common sources of opposition which we have to battle with and overcome, are, 1st—the muscular resistance and contraction, next the time which might elapse between the production of dislocation and the presenting of the patient to the Surgeon; besides which the strength and vigour of the patient himself, &c. &c. &c.

*Modes of reducing the dislocations.*—With very slight modification of means, almost all the dislocations are reduced.

*1st. Dislocation into the axilla.*—If the accident which has happened is recent, we may first try simple means,—thus first we may seat the patient on a chair and put one of our legs on the chair, and place the knee in the cavity of axilla (patient's) and take hold of his elbow, press on it, thus the knee will be made to act as a fulcrum, and the patient's arm as a lever whereby the head of the bone will be tilted up.

If we don't succeed by this means, then we may resort to another practice; viz. place the patient on a table, and the Surgeon takes off his boot, and places his heel in the arm-pit (seating himself on the edge of the table at the dislocated side of the patient) and then the Surgeon takes hold of the patient's fore-arm, and draws it down, at the same time pressing on the head of the bone upwards to lift it up into its position. But suppose having tried all these means, we fail, then we are to resort to more desperate means.

First if the patient is too strong and plethoric we may bleed him to relax the muscular force, and then place him in a warm bath, and give him nauseating doses of tartar emetic, keeping the same object in view; then we take him out of the bath and place him on a chair, and pass a band round the shoulder and chest to fix the scapula. Then we take a wet roller and wrap it round the lower part of the arm to protect the skin from injury, and over it apply the straps of the pully or a common sheet made like clove hitch. Fix in this the pully hook, and gradually extending power is to be made till the muscles are tired, and then perhaps the bone may be reduced with a snap. The strap which was passed round the shoulder is the counter-extending power, and that should be fixed to some pillar, column or any thing towards the back of the patient (or his head.)

In very old standing cases of dislocation in the cavity of the axilla (which can't be reduced) M. Malgaigne recommends us to take up the

arm and extend directly backwards and upwards, and thus the head of the bone will be reduced.

In all other dislocations the plans of treatment, i. e. the modes of reduction and means of reduction are pretty much the same, but the difference only lies in the direction in which extension should be practised, and this direction of extending should be along the axis of the dislocated bone.

The time at which we may allow our patient to use his limb varies from three to five weeks.

The mode of distinguishing between a fracture at the neck of the humerus and dislocation.

In fracture there is not that immobility as observed in dislocation, and in fracture there is preternatural mobility. The limb is not abducted, but rather adducted and in close contact with the side of the chest. Next the crepitus is the infallible diagnostic between a fracture and a dislocation.

If both fracture of the neck of the bone and dislocation exist in the same case, we are always recommended to reduce the dislocation first and then set up the fracture. The dislocation under such circumstances is reduced by placing the two thumbs in the cavity of the axilla on the head of the bone, and grasping (round) the point with the other fingers, we lift the head of the bone.

Having thus reduced the head of the bone, we proceed to set up the limb in the usual method.

*Consequences and results of such complication.* Generally speaking fractures in the vicinity of the joints are extremely bad from their liability to cause inflammation of the joint and all its bad consequences. Next when fractures take place within the capsular ligaments, the union which results is not bony, but ligamentous or cartilaginous, and consequently not a strong joint. I may, however, have premised before, that in the reduction of dislocations we must take the age, habits, &c. &c. of the patient into consideration, and also the time which has elapsed.

*Answer 2d.* The presence of a stone in the bladder is known by the following symptoms: there is a constant and frequent desire for micturition and extreme irritability of the bladder, mostly when it is empty; then the stream or flow of urine at times is suddenly stopped by the stone falling on the orifice of the urethra at the neck of the bladder; besides these we notice the urine to be sometimes mixed with blood. The constant irritation of the stone causes secretion of mucous in unnatural quantity, which is often voided with the urine. The quality of the urine is also at times changed. Again the sudden stoppage of the flow of the stream of urine is re-established by the patient's assuming various positions, whereby the stone falls to the base of the bladder (this differing from strictures, enlarged prostate, &c. &c.) With these there are other sympathetic symptoms, such as retraction of the testicles, pain and numbness along the course of the crural nerves, pain at the perineum and anus. In children we very frequently observe the prepuce to be lengthened from the constant itching sensations and dragging (at the extremity of the penis)—lastly, the unerring and unequivocal criterion of the presence of the stone in the bladder is what is called the manipulation of "*sounding*." This manipulation consists in the passing of a steel instrument, the "*sound*," into the bladder, and causing it to strike the stone, which produces a click.

Certain diseased states, especially the fungoid cartilaginous growths, and the extreme contracted state of the muscular fibres of the bladder produce a noise on the *sound* much like a stone, and thus deludes the inexperienced; but the whole history of the case, with the symptoms



(collectively) detailed above, will lead us to the positive conclusion of the case.

*Various methods of removing stone.* When the stone has descended and lodged in the bladder, nothing but Surgery cures the patient.

At present there are very few methods of removing a stone from bladder; in fact only two, viz. the operation of lithotrity, i. e. breaking the stone in the bladder, so highly lauded and practised by Baron Hurltelop; and the next is the universal operation of lithotomy, of which there are several the *Lateral, Bilateral, and High* operation, &c. &c.

*Anatomy of the parts engaged in the operation of lithotomy (lateral.)*

1. The parts engaged in the operation of lithotomy are none in fact very important, and which endanger life. They are the skin, the superficial perineal fascia, the superficial sphincter ani muscle, the transversalis perinei, the perinei alter (sometimes), the transversalis artery, then the deep perineal fascia, the membranous portion of the urethra. Next we have the prostrate gland (left lobe of the neck of the bladder. 2. The additional parts concerned in this operation, and which may be considered as dangerous are the internal pudic artery, the rectum, (perhaps with awkward and ignorant operators the bulbous portion of the urethra, and the artery of the bulb) and then the vesiculæ seminales.

The parts that are mentioned in the first class are invariably more or less cut in the lateral operation of lithotomy, but the division of any of the parts mentioned in the 2nd part is wholly unjustifiable, shewing a perfect ignorance of topographical anatomy.

*As regards the operation.*—Having ascertained first the presence of the stone, and the state and habits of the patient, we may prepare him for the operation; thus correct the state of the *primæ viæ* by purgatives, mercurial if required, and if his habits be of plethoric and inflammatory diathesis, then bleed him and so forth; if febrile symptoms present themselves given him antimonials, purges, perhaps mercurials, &c. &c.

Having prepared the patient for the operation we must sound him again to dissipate any doubt, and make sure the presence of the stone in the bladder, then we are to have his perineum shaved, and pass a grooved (laterally) staff into the bladder, of such a size as will moderately distend the urethra, and not so large as to be held firmly there; then we bandage or tie his hands to his feet (having seated him on a table, the shoulders elevated, and the hips brought on the edge of the table.) Then we give each part to the care of assistants, three or four of whom are required. Then we see if the necessary instruments are ready, which should consist of one or two scalpels with strong handles, and convex points, one or two forceps for extracting the stone, one curved forceps to take out if the stone lies down at the base of the bladder: some warm water, sponges, one or two Liston's artery forceps (for contingencies,) &c. &c. Now we proceed to the operation. As the staff is in the bladder to satisfy ourselves we make it answer as a "sound" and then give it to a steady assistant, who is to firmly grasp it against the pubic symphysis, at the same time with his left hand lifting up the scrotum. Then the operator seats himself on a low stool (having the implements before him in warm water, or in the care of a good assistant) near the edge of the table, takes the scalpel and feels for the point where the staff recedes under the pubic arch, there about a line external to the raphe on the left side the surgeon makes an incision and carries it obliquely outwards and downwards between the tuber ischii and rectum; in this incision he divides the skin, superficial fascia and a few of the fibres of the external sphincter. Next the operator feels for the receding and merging point of the staff, and then he dips down-

wards his knife and inwards, and with it he passes his left index finger; by this incision he cuts the transversus perinei muscle and artery and the alter (in the ischio rectal space.) Having done this he feels by the finger the groove of the staff, puts the point of his knife there, and then he shakes his knife a little to insure its being fixed in the groove, when he cuts along downwards in the groove till he reaches the neck of the bladder, dips the knife in a little (now the urine will flow and insure the surgeon) and keeping his left index finger in the bladder, the surgeon lateralizes the knife and cuts the left lobe, then the prostrate slightly and brings out the knife. Then he with his fingers tears out a little the parts, and introduces the forceps in (but when he enters the bladder tells his assistant to take out the staff) and holds the stone in its right axis, and bring it with a waving motion in the axis of the pelvis. The blades of the forceps must be introduced shut, and not be opened in the bladder unless the stone is felt, which should be pushed in by the surgeon's left hand finger which is already in.

In general the operation in its after treatment requires very little aid, but care and attention.

There are few or perhaps no vessels which require securing. The wound is to be cleaned of the coagula and a gum elastic catheter kept in to allow the urine to dribble out, without coming in contact with the wound. Perhaps after the operation we may be require to give an opiate to soothe irritability and procure sleep. Then to guard against inflammation and keep on cold water dressing. Generally speaking, after 14 to 21 days the urine passes through the natural exit. The wound also heals in the same time. If untoward symptoms come on, they are to be treated accordingly, thus inflammation and high fever by bleeding, leeches, purges, antimonials, mercurials: the inflammation of bladder by leaching in perineo, fomentations, pediluvia, opiates, antimonials, giving plenty of diluent drinks, also diaphoretics, mucilaginous drinks also may be given.

*Answer 3d.* Every tissue and structure which composes the organ of sight and its appendages is liable to take on inflammation, but by the words "*more common kind,*" I understand the various forms of inflammation implicating the mucous tissues, the fibrous, and the inflammation of the iris. Inflammation also affects the nervous coat of the eye constituting retinitis. However before describing the inflammations as attacking the eye, I may remark that every inflammation is apt to increase and implicate other tissues of the organ in its course, though primarily and idiopathically that tissue may not have been involved in the morbid action.

1st. In what is called the *catarrhal ophthalmia* the eyelids are the part that are first diseased, by this I mean the conjunctiva lining it, and secondarily the globular or sclerotic conjunctiva.

In this inflammation, the patient complains of a peculiar sense of stiffness of the eyelids first, then a peculiar gritty and sandy feeling in the part, the pain then increases, and the inflammation also (with it) there is a burning sensation in the eye, then profuse lachrymation, the sclerotic conjunctiva is now seen to be of a livid red color, the vessels being very tortuous, and terminating abruptly at the margin of the cornea. The vessels can be moved, thus differing from inflammation of the deeper tunics. Then the character of the mucous secretion changes and it becomes thick. With these symptoms the patient has symptoms of general and constitutional derangement, as febrile heat, accelerated pulse, a foul furred tongue, &c. &c. Of course these symptoms do not always appear "*seriatim,*" but are variously modified according to the nature of the cases.

As for the treatment of this simple catarrhal ophthalmia we are to use local means, such as leeching, purging, and the exhibition of mild alterative mercurials, and when all the symptoms of the acute stage have subsided, then the use of local astringent drops. The leeches may be applied from three to six (according to the age and severity) around the side, then the parts are to be fomented, either by simple tepid water, or medicated with poppy head fomentations. Then we give the patient a dose of calomel, gr. vj. colocynth gr. viii. and ant. tart., gr. ʒ, this should be followed by a dose of senna and salts.

The leeches may be repeated, and the use of fomentations, &c.

When all the acute symptoms have passed, we resort to local astringent drops, as gr. ij. of lunar caustic to an ounce of distilled water, 2cc dropped in the eye—or sulphate of alum, zinc, copper, &c. &c. according to your choice.

2d. The next common form of inflammation of the conjunctiva is what is called the *acute ophthalmia* or conjunctivitis.

This form of inflammation is generally induced by wounds, or mechanical or tangible causes, and differs from the preceding only in the symptoms being of a graver aspect and the inflammation first appearing in the sclerotic conjunctiva, and the palpebral conjunctiva being secondarily influenced. The symptoms are alike.

As the disease is of severer nature than the preceding, our measures to combat it should be accordingly decisive.

Chemosis is a frequent attendant of this form of inflammation which causes a considerable elevation of the conjunctiva round the cornea and sometimes over it, this is treated either by scarifications, or some say slice it off.

Perhaps we may in this form be obliged to have recourse to blood-letting from the arm, or temporal artery, or we may use leeches, and their repetition should be according to the nature of the symptoms. Then the exhibition of calomel and colocynth pills combined with antimonials, then purgatives, either jalap, scammony and calomel, or black draught, and afterwards local fomentations, or if the patient likes them cold water applications. Some recommend the use of green shades and others discard them. If constitutional fever be constant then the exhibition of antimonials and diaphoretics, and if the inflammation be severer, then the exhibition of mild doses of calomel with ant. tart., and perhaps combined with opium.

When all the severe symptoms have passed and the inflammation assumes an asthenic and passive state, then we use local astringent drops. Some recommend the use of Guthrie's ointment, consisting of 2 to 4 grains of nitrate of silver, 15 drops of liquor plumbi acetis, and ʒi. of axunge or simple cerate, well mixed and applied twice. When this asthenic condition prevails and there remains some irritation then we may with considerable advantage use the drops thus made: tr. or vin. opii. spirits of wine, and water, each ʒi. dropped three times a day.

Sometimes an *asthenic* sort of inflammation of the eye remains, and shews symptoms of a *sthenic* nature, and here the use of means to counteract *sthenic* inflammation will only make worse the whole affair; but the use of tonics, as quinine, mineral acids, infusion of roses, and local stimulating drops, will cure the case with astounding rapidity.

3d. The next forms of inflammation which attacks the external tunics of the eye, are the three forms of purulent ophthalmia, viz. the 1st *ophthalmia neo natorum*, or the purulent ophthalmia of infants; 2d, the *purulent ophthalmia of adults*; and lastly, the *Egyptian or gonorrhœal ophthalmia*. Pathologically speaking, these three forms of ophthalmia are the same disease, but differing only according to the age, and the severity of the symptoms.

In all of these forms of ophthalmia the part which first inflames is the palpebral conjunctiva.

These forms of inflammation have been divided into three stages, viz. the commencement, the height, and the decline, which last may or may not be favorable.

The first form, or purulent ophthalmia of infants, attacks children generally on the 3d day after birth, begins with redness of the lids, which very soon diffuses itself rapidly over the rest of the eye, the inflammation causes great and enormous swellings of the lids, and the eye is at once closed, there are gushing of tears of very scalding, burning and hot nature, and then when the eye is opened you will find tears gush out in considerable quantities. With this there is pain (of which the patient does not complain, of course) extreme intolerance of light, and so forth. Then with these the constitutional symptoms are present.

Now if the eye be opened the cornea will be seen to have become hazy, to have lost its brilliancy, or to have become perfectly opaque.

After this the 3d stage arrives, when the swelling and inflammation all subside, and the child opens his eyes, but opens never to see the light. The havoc which this form of inflammation commits often is irreparable, such as haziness and opacity of cornea, ulcer of cornea, prolapsus iridis, sloughing of cornea, hernia of the humours, and complete destruction of sight. The treatment necessary for this form of inflammation should be strictly antiphlogistic, as one or two leeches, exhibition of one or two grains of calomel, and then purging; if the symptoms remain, then repeat locally the use of fomentations or mild alteratives and mercurials to keep the system under their influence, are to be given. In the last stage or decline drops to be used.

The disease in adults runs very rapidly, and the symptoms are of vast intensity and severity, and consequently the measures must be the same. Thus bleeding from the arm, or temporal artery, then application of leeches, repeated exhibition of mercurials, purges, fomentations, and last stage counter-irritants, blisters, tartar emetic ointment. When febrile symptoms, then antimonials combined with mercurials and opium. In last stages the use of drops. If however the cornea ulcerates then we are never to use acetate of lead drops, as a white indelible speck remains. The other form of inflammation which attacks the eye is rheumatism or sclerotic ophthalmia.

In this form the pains are mostly seated in the socket and eye-brows, increase towards the evening, and upon the application of cold, the vessels in this form of disease are not tortuous but run in straight lines towards the cornea. The history of the case will lead us to the conclusion. The treatment must be as follows: In rheumatic cases, leeches, fomentations, use of purgatives, as senna and salts, with vinum colchici, then Dover's powder, and lastly opiates. Drops may also be used. Afterwards hemidesmus or sarza with iodine compounds may be used, when all the symptoms of severity have passed.

Another form of inflammation of the eyes is iritis, in which the iris is the part which inflames, and this inflammation is of three distinct sorts, viz. the *idiopathic*, the *rheumatic* or *arthritic*, and the *syphilitic iritis*. There is also a fourth variety noticed, viz. the *scrofulous iritis*.

The inflammation of the iris is very dangerous in its consequences, and it is very rarely that it is confined only to the iris, as it implicates in its course other tunics also.

This disease is shown by a peculiar sense of stiffness of the eye more than actual pain, nextly the pains come on, increasing towards the evening, and then the redness is not very conspicuous first, but a pink zone

characteristic of inflammation of internal tunics is observed round the rim of the cornea, then there is extreme intolerance of light, the sense of vision then dims, and gradually the patient cannot see owing to the contraction of the pupillary aperture, the pupil becomes irregular, and it loses its natural brilliancy and lustre; instead of being a transmitting agent it becomes an absorbing surface; the colour of the iris also changes, from the blue of Europeans it becomes greenish, and from the black of Indians it becomes reddish or muddy. These are the characteristics of iritis. In the syphilitic variety the pain is said to be more grave on dark and cold evenings, the irregularity of pupil considerable, and the pupil drawn inwards and upwards. In the rheumatic variety the pink zone of vessels is muddy or purplish, and pain also severe. Here the iris is studded with small tubercles, occasioned by the deposition of lymph.

The consequences of inflammation are also destructive, thus adhesion constituting synechia anterior and posterior, formation of abscesses or hypopion, &c. In some cases cataract also results.

The treatment should be acute and decisive. Bleeding, mercury and belladonna are the grand and sheet anchors. With these the use of leeches, purgatives, &c. &c. Subsequently drops, but they are not of much value.

In syphilitic cases turpentine has been highly recommended by Mr. Lawrence, when we can't use mercurials, &c.

*With regard to the arteriotomy.* The temporal artery is opened just at the point where it gets above the zygomatic process of the temporal bone. The mode of opening is thus:—By two of the fingers of the left hand we fix the vessel (as it is very slippery from lying over the temporal fascia) and then take a lancet and introduce its point in the vessel in an oblique direction, and in the same direction bring it out. When a sufficient quantity of blood has been taken away, then the general plan recommended to stop the bleeding is to introduce the lancet there, and cut the vessel right through transversely, thus the vessel contracts and retracts, and the flow stops.

However before resorting to this we may try the use of small graduated compresses, and the temporal bandage; for sometimes by cutting the temporal fascia, inflammation comes on and suppuration takes place, and “lock jaw” follows of course—when we don't succeed by bandages, then cut the vessel right through carefully.

*Answer 4th.* The most common forms of fever as met in Indian practice are the various forms of the intermittent, next the remittent and congestive fevers; lastly some of the continued fevers constituting the exanthematous initiatory fever. Typhus fever in its purest form is perhaps never seen in India, though some of them assume the typhoid type.

The general characters of the intermittent fevers are the distinct three stages, of cold, hot, and sweating stages. Sometimes these stages are not very distinct. The cold stage is marked by a sense of languor, lassitude, weariness, fatigue, pains in various parts of the body and chilliness; these are followed by heat of body, acceleration of the pulse, a deranged state of secretions and excretions, as dry and parched, furred tongue, thirst, costive bowels, high colored urine, want of appetite, headache in some instances, and so forth; these symptoms constitute the *hot stage*, and this is followed by the *sweating stage*, in which a copious perspiration breaks forth, and all the parts resume their original functions. The organ which mostly (than any other) suffers from the attacks of intermittents, is the *spleen*, constituting what is so expressively called by the vulgar the *ague cake*. Besides the spleen the repeated attacks of intermittent may implicate the liver.

The next form of fever met in Indian practice is the remittent fever; this is marked by the fever observing, never, any intermission, but remissions, i. e. slight relief of the symptoms, but the patient remaining just as much unrelieved as he was, and the paroxysm then returns with severity.

The general characters of this form of fever are pungent heat of the skin and a dry, furred, or brown tongue, an accelerated, and perhaps a hard pulse and incompressible. With these if the disease assumes the typhoid type then the headache is supervened by extreme heaviness and stupor, the tongue and gums become brown, dry, and sordes accumulate on them, the muscles of the hand are tremulous and play involuntarily, constituting subsultus tendinum; if the patient is asked to bring the tongue out he does so with extreme hesitation, and perhaps does not take it in, and then occurs picking of bed clothes; and lastly, the coma and heaviness increase and the patient dies so.

The complications mostly met in this form of fever are congestions and softening of the brain, and sometimes of the lungs and abdominal viscera, chiefly the liver.

The *congestive* form of fever is a species of *remittent*, and met in the rainy season, and in this the head symptoms are very grave.

The continued fevers constituting exanthematous fevers, prevail at certain seasons of the year. They are ushered in as usual by fever, followed by eruptions, and they never remit or intermit unless they have run their defined course, which period varies according to the nature of the eruptions.

*As regards to the general plan of treatment in cases of fever.* As a matter of course in treating fevers we are to be guided by the symptoms as they show themselves, and the tendencies to complications; thus we will not resort to the same means where there is local determination towards the brain, and say the spleen.

Generally speaking when the symptoms are grave, with high arterial excitement, then we bleed our patient and perhaps repeat it; then the local application of leeches, to keep up the sedative influence of V. S. we use the tartar emetic in small doses, say 1-8th of a grain every hour; however if there be tendency to effusion from local determinations we use calomel, and the benefit of large doses of calomel is very well seen in cases of remittent fevers. Sometimes we will be obliged to administer the calomel combined with antimonials and chalk, thus:—hydrarg chlor. gr. iij, ant. pot. tart. gr. 1-8th and creta. ppt. gr. v. three or four times a day. With all these we are to use purgatives, and the antimonials answer as diaphoretics; occasionally we will be obliged to use baths. When all the severity of symptoms has subsided, then blisters, counter-irritants, &c. &c. are to be used. These means are general, and these do not apply to every case, and therefore the plan must be varied according to the nature and intensity of the fever, the importance of the parts complicated, and so forth.

Sometimes the body is so pungent, hot and dry, that we will be obliged to sponge the body with vinegar and water. When the headache is much after V. S. and local abstraction we may be obliged to use cold local applications and so forth. When the abdomen becoming tympanitic, (as seen in typhoid and typhus fevers,) by distension from gas, the passing of a stomach pump tube is followed by very beneficial results) through the anus) by the gases being expelled.

When all the symptoms of severity have passed then we are to use our quinine, tonics, mineral acids, and so forth. Sometimes the effervescing draughts, &c. &c.

Sometimes the paroxysms of fever exhaust the patient so much as another fit may perhaps kill him, and here if you find the slightest remission you give your quinine, perhaps combined with calomel. Soda and ipecacuanha are also used when there are gastric complications, attended with vomiting, red and glazed tongue, &c. &c.

*Treatment of intermittent fever.* In this form in the cold stage we do very little, perhaps an additional covering. During the hot stage we use our antimonials to produce diaphoresis, give gr. ij of ant. tart. dissolved in 8 ounces of water, an ounce every hour. Then we may give him purgatives, perhaps calomel, colocynth and tartar emetic pill at night, followed in the morning by a dose of jalap or senna and salts.

During the intermission of the fever, medicines reputed to be anti-periodic—and which are quinine, arsenic, narcotine, sulphate of bebeerine—have been tried with efficiency—tr. of opium has also at times prevented the return of a paroxysm of intermittent.

TUMEEZ KHAN.

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## Replies of General Students.

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### MIDWIFERY.

1. The changes which take place in the ovaries during menstruation consist in the congestion of those organs, or the distension of their vessels with blood.

From impregnation the above change takes place, together with a number of others, which have been found on examination to be as follows. The germinal spot, which under ordinary circumstances, is on the surface of the germinal vesicle passes to its centre, the germinal vesicle, which was on the surface passes to the centre of the yelk; the membrane covering the yelk, which was extremely thin, becomes suddenly thickened, and the tunica granulosa and retinacula are discharged with the ovum.

The impregnated vesicle points externally, where the fimbriated extremity of the Fallopian tube is applied to it, and between its coverings (the tunic of the ovisac and the ovisac itself) a pulpy substance of a yellowish red colour is deposited in every part except where the vesicle points externally. This pulpy substance which consists evidently of blood and lymph, acquires a greater consistence, and constitutes what is called the *corpus luteum*; the number of which corresponds exactly to that of the children conceived.

2. The most positive signs of pregnancy are those derived by means of auscultation. By means of it may be heard the sounds of the fœtal heart, the pulsation of the umbilical arteries and the placental murmur; but while the positive evidence which we derive from it gives sure indications of the existence of pregnancy, the negative evidence is by no means a sure test of the absence of that condition. This test, besides, is only applicable after pregnancy has reached a rather advanced stage. The other and most ordinary signs of pregnancy are—

- 1st. The cessation of menstruation.
- 2d. Morning sickness, especially when it occurs in a regular manner.
- 3d. Enlargement of the abdomen.

4th. The mammary symptoms, consisting of the enlargement of the mammæ, the secretion of milk, and the formation of a dark areola around the nipple.

5th. The quickening sensation, as it is called, felt by the mother.

6th. The evidence derived from examination by *ballotement*, as the French call it, consisting of the following manœuvre,—

Pressing against the *os uteri*, with one finger by which if the fœtus is present in the uterus, it would be pushed upwards, and by keeping the finger there for a certain time, the sensation of the descent of the child and pressing upon it may be distinctly felt. Of the above the two last are much surer signs than the rest, but in medico-legal examinations the 5th can hardly be depended upon, in as much as we are to rely for it on the testimony of the woman herself. The others, when taken collectively, may furnish a sufficient evidence of the presence of pregnancy, but singly and individually each of them may exist independent of pregnancy; and some of them may be absent notwithstanding a pregnant condition being present.

Thus menstruation may cease in consequence of the supervention of a delicate state of health or from some other cause constituting *suppressio menses*; while on the other hand it may occur once or twice after impregnation has taken place. Nausea and vomiting may occur in connection with dyspepsia and other affections; and cases have been known in which they did not occur although a pregnant condition of the system was present. When, however, they occur regularly in the morning, and do not impair the digestive functions in any very material degree, there is reason to suppose them as arising from pregnancy and not from disease.

The abdomen may be enlarged by dropsy, sometimes from mere obesity; and the mammary symptoms may be present in connection with menstruation, and the areola round the nipple as a diseased condition. Besides these, other signs have been mentioned, denoting pregnancy, such as salivation; kiestein or the deposit of a milky pellicle upon the urine—but these are exceedingly doubtful, and little or no dependance can be placed upon them.

3. The differences met with in the state of the cervix and *os uteri* during the unimpregnated state and different stages of pregnancy are as follows:—During the unimpregnated state, the cervix may be felt protruding into the vagina and *os uteri* is open; but when impregnation has taken place, the canal of the cervix is closed by a thick viscid mucus. But it is not until the pregnancy has reached an advanced stage that the chief differences become perceptible. During or about the sixth month about a quarter of it disappears and becomes continuous with the body of the uterus; about the seventh the cervix closes another quarter or in all half of it; about the 8th another quarter is taken from it and appropriated as above, so that now only a quarter of it remains, which during the ensuing month also disappears, no trace of the cervix being left, the whole of it being continuous with the body; so that on a vaginal examination its top or roof is felt to be formed of a smooth convex arch.

4. The symptoms of exhaustion during parturition are shivering and rigors, more or less severe, nausea and vomiting, generally very distressing, the latter often consisting of yellowish or greenish matter, a hot skin whether it be dry or moist; tongue furred, dry and cold; a weak, quick and fluttering pulse; extreme uneasiness and want of rest; and a disturbed, fearful and desponding mind. These symptoms, unless promptly relieved increase in severity. The vomiting becomes dark



and grumous, the skin bedewed with a cold and clammy perspiration; sordes accumulate on the lips and teeth; the pulse becomes exceedingly weak and frequent, sometimes intermitting; the restlessness extreme; sometimes delirium happens, jactitation and convulsions take place, and at length death closes the melancholy scene.

These symptoms arise from arrest of the progress of the fœtus in the second stage of labour from whatever cause the same may arise, whether from want of power on the part of the uterus and the suspension of its contractions, or the latter going on in the usual manner, from some mechanical obstruction being thrown in the way of the fœtus, either in the brim, the cavity, or the outlet of the pelvis. When the arrest is owing to the first of these causes, and there is no want of space for the passage of the child, we may endeavour to excite the uterine contractions by the administration of such specific substances as the ergot of rye, &c. but should the symptoms of exhaustion be urgent, and instant relief be required, the delivery must be promptly completed with the forceps. But if the arrest has been owing to some mechanical obstruction, the treatment must be according to the nature of the obstacle, for instance, when it is a cystic tumour, it may be punctured and its contents evacuated; but when the pelvis is deficient in its general capacity, or a tumour of some firm kind, such as fibrous, osseous, schirrus, &c. has grown upon some part of the pelvis and thereby caused a diminution of the pelvic cavity, then the delivery must be completed by the vectis, the forceps, or the perforator; by the vectis when there is only a mere arrest, and a little assistance from without would enable the child to pass; but if some degree of compression or extracting force be necessary the forceps are to be applied; but should the forceps prove insufficient, the perforator is to be used.

The symptoms of exhaustion may also arise from certain complications, such as hæmorrhage, convulsions, rupture of the womb, lacerations, &c., in all these the particular nature of the complication must be attended to, and delivery accomplished in the safest and most expeditious manner.

5. The circumstances under which premature labour may be induced are, 1st, those in which there is an evident impossibility of the delivery being completed in a natural and safe manner at the full period, in consequence of the extreme distortion of the pelvis; and 2ndly, whence the safety of the mother becomes incompatible with the further continuance of the pregnant state, as in certain cases of hæmorrhage occurring before the full period of gestation and threatening loss of life to the mother unless quickly relieved. Also, 3rdly, the modes of effecting in cases of the death of the child, (premature labour) are by rupturing the membranes, exhibiting ergot of rye and aloes, &c., and by performing the operation of turning or version.

6. The designations of the various forms of uterine hæmorrhage occurring during and before parturition, are *accidental* and *unavoidable*. Their causes vary according to their nature. The accidental is caused by some sudden and partial detachment of the placenta from its connections with the uterus, in consequence of some violence received, such as a blow or a fall; violent exertions, such as lifting heavy weights, excessive fits of laughter, over-straining at stool, &c. have been known to give rise to it.

The unavoidable hæmorrhage has but one exciting cause, and it can only occur in cases of placental presentations, by the dilatation of the *os uteri during labor*, and the consequent separation of the utero-placental connections, and the laceration of the connecting vessels. The treatment to be adopted in either of the forms has some very essential points of

difference, for which a correct diagnosis is of the utmost importance; but this may be easily formed from attending to the following circumstances, viz. That accidental hæmorrhage is traceable to some definite cause, that it is arrested during the pains, and that the edges of the *os uteri* are of uniform thickness all around; while unavoidable hæmorrhage cannot be traced to any definite cause, the flooding which continues in the intervals is greatly increased during the pains, and on an internal examination, the *os uteri* in whole or in part, is felt covered by a thick spongy substance, or at least its edge is not of uniform thickness all around, being somewhere considerably thicker than the rest of its extent.

The treatment of accidental hæmorrhage varies according to the period of gestation, the state of the *os uteri*, and the degree of hæmorrhage; so that in cases, in which the period of gestation is not complete, the *os uteri* rigid and not relaxed, and the hæmorrhage not excessive it becomes the practitioner to temporise and have recourse to palliative measures and not hastily proceed to deliver the patient. With this view he should order the patient to be placed in a hard bed, in a cool room, and remain in complete rest; allow her only cold drinks, and administer internally acid mixtures such ℥ss. of dilute sulphuric acid with ℥vi. of the infusion of roses, of which ℥i. may be taken every hour; and astringent medicines, such as the acetate of lead, either with or without opium. He should also employ cold enemata, and apply cold to the abdomen and the external genitals. A plug consisting, say of sponge or lint, or a folded handkerchief, may also be used to close the *os uteri* and vagina.

But if on the other hand the period of gestation be complete, the *os uteri* dilated and relaxed, or the hæmorrhage excessive from which serious consequences may be apprehended, it is advisable to induce premature labour or hasten it if already commenced, by puncturing the membranes; should this (the puncturing of the membranes) fail to excite the uterus to contraction, ergot of eye may be administered internally; after which or even without trying its efficacy in cases where urgent symptoms are present, it may be necessary to have recourse to the operation of turning and thereby complete the delivery; in these cases a liberal but judicious allowance of stimulants is necessary, and should the patient be exceedingly exhausted transfusion may be had recourse to. In cases of unavoidable hæmorrhage, if the practitioner is called on the first appearance of the hæmorrhage, which is generally about three weeks before the commencement of labor, he may temporise for a time having recourse to the palliative measures above described, but when labour has commenced he must proceed to deliver the patient without much delay. This he may accomplish in the following manner. By passing his hand in a conical form between the uterus and the placenta on that side in which he may have reason to believe the extent of the latter to be the least, and gradually advancing it in a slow and gentle manner into the cavity of the uterus during the intervals of the pains, he may search for and seize the feet of the fœtus, and then gradually bring them down and complete the delivery. Should the feet present, that must be considered as a favourable circumstance, as it precludes the necessity of passing the hand into the uterus. After delivery, both in this and the previous forms of hæmorrhage it becomes the duty of the practitioner in attendance to endeavour to secure a firm and permanent contraction of the uterus, by the application of bandage, gentle pressure over the abdomen, application of cold to it and to the genitals, vaginal injections of cold water, cold affusions upon the abdomen from a little height, &c.,

but should all these fail, by stimulating the uterus to contract by passing the hand within it, he must attend to in order to provide against the risk of subsequent hæmorrhage.

NOBIN KRISTO BOSE.\*

### CHEMISTRY.

Answer. 1. Ammonia is prepared by heating Sal-ammoniac and slaked quicklime in a retort; the re-action which takes place is this. Sal-Ammoniac is composed of hydrochloric acid and ammonia, and slaked quicklime is composed of hydrated oxide of calcium; when these substances are heated together, both of them are decomposed, the hydrogen of the hydrochloric acid of the sal-ammoniac unites with the oxygen of the oxide of calcium and forms water; and the chlorine of the decomposed hydrochloric acid unites with the calcium to form chloride of calcium; and ammonia is set free.

The process is explained by the common theory in the following way:  $\text{hcl. am.} + \text{ca O, ho.} = \text{cl. ca.} + 2 \text{ho.} + \text{am.}$

Ammonia is an alkali, unites with hydrochloric acid and forms hydrochlorate of ammonia, and when lime comes in contact, the change which occurs is mentioned in the above equation.

Now for the ammonium theory. For this theory the existence of Ammonium, a compound radicle is believed, which plays the part of a simple element, and which combines with chlorine and with oxygen, as potassium or sodium do in the ammonium theory. This process is seen in this way: when ammonia unites with hydrochloric acid it forms chloride of ammonium and this will be better shewn in equation as thus,  $\text{h. cl.} + \text{nh}_3. = \text{cl. nh}_4.$  and when this unites with hydrated oxide of calcium the change is following  $\text{cl. nh}_4. + \text{ca O ho.} = \text{cl. ca.} + 2 \text{ho.} + \text{nh}_3.$  such is the ammonium theory. The composition of ammonia is that it consists of three hydrogen and one of nitrogen, as thus  $\text{nh}_3$ : symbol. am.

It is a gas at ordinary temperature, colourless, transparent, with a pungent and peculiar smell, and is poisonous when taken undiluted. Its test is its peculiar smell, and when at the mouth of a jar of ammonia, hydrochloric, or nitric acid is brought, it gives white thick fumes of hydrochlorate or nitrate of ammonia.

2. Chlorine combines with hydrogen by simple affinity and forms hydrochloric acid, which is gaseous at ordinary temperatures, colourless, transparent and of a suffocating smell; it reddens litmus, and so evinces its acid property; is readily absorbed by water, and forms what is called liquid hydrochloric acid, having all the properties of the gas.

When potass and chlorine come together, heat being applied, it first forms chloride of potassium and hypochlorite of potass, and then chloride of potassium and chlorate of potass. The change is in the following equation in the first stage when  $6 \text{cl.} + 6 \text{potass} = 3 \text{clo. ko.} + 3 \text{cl. k.}$  and in the second stage, 3 equivalents of chloride of potassium remaining unchanged, is thus  $3 \text{clo. ko.} = \text{cl. } \circ_3 \text{ ko.} + 2 \text{cl. k.}$ , so we have one of chlorate of potass and 5 chloride of potassium.

Chloride of potassium cristalizes readily, the cristals are transparent and very soluble both in cold and hot water.

Chlorate of potass also cristalizes and deflagrates, and is very explosive when mixed with charcoal, and readily parts with oxygen and becomes chloride.

\* Attended one course of lectures.

When chlorine comes in contact with lime it forms bleaching powders, that is hypochlorite of lime and chloride of calcium, the reaction as follows :

$2 \text{ cl.} + 2 \text{ ca O.} = \text{clo.}, \text{ ca. O.} + \text{cl. ca.}$ ; its best property is that it bleaches organic substances and parts with chlorine when acted on by an acid, such as sulphuric acid.

When chlorine comes in contact with zinc they combine with each other, forming chloride of zinc by their simple affinity, such as  $\text{cl.} + \text{zn.}$   
 $\text{cl. zn.}$

It is a semi-solid formerly called butter of zinc, and a deliquescent mass.

Chlorine combines with oxygen in 4 proportions, first, with one oxygen called hypochlorous acid; second, with four oxygen called chlorous acid; third, with five of oxygen called chloric acid; fourth, with seven oxygen called perchloric—first hypochlorous acid is composed of one of chlorine and one of oxygen; is a transparent gas of a yellowish tint, and explodes most violently.

Second, chlorous acid is composed of one of chlorine and four of oxygen, and is a gas of the same appearance, and explodes most violently.

Third, chloric acid which is composed of one of chlorine and five of oxygen always remains in solution, it more violently explodes than the preceding four—perchloric acid is composed of two chlorine and seven of oxygen, and only found in solution.

Third part of second question.

When hydrochloric acid acts on iron the chlorine of the hydrochloric acid unites with iron and forms chloride of iron, and the hydrogen of the hydrochloric acid is given off.

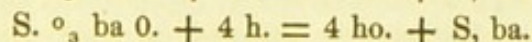
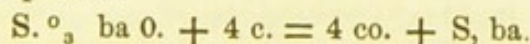
The resulting substance chloride of iron is a white deliquescent mass readily soluble in water, and the solution shows all the characters of protoxide of iron.

When hydrochloric acid acts on magnesia, it forms hydrochlorate of magnesia, a rare case, and which gives on evaporation magnesia; hydrochloric acid being given off.

When hydrochloric acid acts on nitric, acid, they combine with each other and form nitromuriatic acid whose best property is that it dissolves gold, and the reaction is this  $\text{no}^{\circ} \text{ ho.} + \text{hcl.} = 2 \text{ ho.} + \text{no}_4. + \text{cl.}$

3 In this process first change the sulphate of baryta into sulphuret of barium which can be done in several ways; either by heating sulphate of baryta with charcoal when the carbon will deprive both sulphuric acid and baryta of oxygen, and will be given off in the form of carbonic oxide, and the sulphate will be converted into sulphuret of barium, or this can be done passing hydrogen over the sulphate of baryta at a red heat, which will deprive both sulphuric acid and baryta of oxygen as carbon did, and so turn sulphate into sulphuret; and there are other processes by which sulphate of baryta can be changed into sulphuret.

Now when we act with hydrochloric acid on sulphuret of barium then the sulphur of the sulphuret unites with the hydrogen of the acid and forms sulphuretted hydrogen which is given off, and the chlorine of the acid unites with barium and forms chloride of barium. This process is illustrated in the following equation: the first changing sulphate into sulphuret.



and the next stage is, when this sulphuret is changed into chloride:  $\text{ba.} + \text{h, cl.} = \text{cl, ba.} + \text{h.}$

4. This salt is found native in many parts of the earth and is called Epsom salts, from which the manufacturers purify it in various ways. It is also prepared from the mother liquor from which salt has been prepared, where it remains principally in the form of chloride, by acting on it with sulphuric acid: sulphate of magnesia is precipitated and hydrochloric acid remains in solution, thus the process and theory are:  $\text{cl.} + \text{magnesia} + \text{ho.} + \text{so}_3. \text{ho.} = \text{h. cl.} + \text{ho.} + \text{so}_3. \text{l mag.}$  the water is decomposed, its hydrogen unites with the chlorine of the chloride and oxygen with the metal which unites with sulphuric acid and forms sulphate of magnesia which is precipitated and cristalizes.

5. Tests of the protoxide of iron: alkaly gives a bulky precipitate of hydrated protoxide which soon absorbs oxygen and becomes brown, and so do the carbonates of the alkalies; ferrocyanide of potassium gives a pale blue or rather white, and ferridicyanide of potassium gives a perfect blue; sulphur and hydrosulphuret of ammonia give a black; protoxide of iron gives no precipitate with sulphocyanide of potassium, or with infusion of galls, or with meconic acid, or with tannic acid.

The tests of the peroxide of iron are, that it gives with alkalies and alkaline carbonates a brown precipitate; with ferrocyanide of potassium Prussian blue, and with meconic acid a blood red precipitate, and with infusion of galls or with tannic acid a dark blue like an ink: no precipitate with ferrodicyanide of potassium.

6. When sulphuric acid acts on copper, sulphate of copper and sulphurous acid are formed, the latter is given off and the former remains, and when carbonate of ammonia is poured on it forms ammonio-sulphate of copper. It is composed of sulphate of copper and carbonate of ammonia. Its appearance is dark green.

8. It is procured from strychnos nox vomica, the seed and the bark of it having been bruised, and making decoction of it in sulphuric acid.

This decoction being acted on by milk of lime precipitates, and this precipitate after being washed with cold alcohol is boiled with boiling alcohol which precipitates strychnine; the process and theory of this is the following.

In the bark and seed the strychnine remains as strychniate of strychnine and brucine, and this being dissolved in sulphuric acid strychnine and brucine unite with sulphuric acid and form sulphate of strychnine and brucine, which remain in solution, and when milk of lime is thrown in this solution, the sulphuric acid of the sulphate of strychnine and brucine unites with lime and forms sulphate of lime which remains in solution, and strychnine and brucine are precipitated; this precipitate is boiled in alcohol.

The strychnine is deposited and brucine remains in solution.

Strychnine forms transparent crystals which are very sparingly soluble and very bitter. It is said that one grain of it bitters almost 40,000 parts of water.

Its best test is that nitric acid gives a yellow precipitate when no brucine is present.

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## MATERIA MEDICA.

1. Of the different remedies used in the treatment of acute dysentery, the first is depletion, which may be either general or local. General depletion by means of venesection may be practised in those cases where the pulse is full and strong, the tongue furred, the skin hot, &c., the object being to diminish the quantity of the circulating fluid and to prevent inflammation running on to its destructive stages. The quantity of blood to be taken will be determined by the effects it produces; for instance, if the skin from being hot and dry becomes moist, if the thirst diminishes, and the local pain subsides, then the blood-letting has been carried to the necessary extent. This may be required to be repeated, but generally after a full venesection local depletion will be found sufficient, and for this purpose leeches must be applied to the affected region whether it be the transverse colon, cæcum, or sigmoid flexure. Cupping is seldom made use of. There is a variety of leeches used in medicine, some are large and others small, they abound in ponds and marshy places, and are collected by men, who walk through these places, and to whose legs and feet the leeches attach themselves; they are preserved for medicinal purposes in clay; they belong to the class of boneless animals, and are composed of a number of cells with intervening septæ; the bites they produce are like a bayonet, round triangular; leeches are a very useful means of practising local depletion.

Next to blood-letting in acute dysentery, is calomel or the protochloride of mercury. It is generally given in the form of pill combined with opium, in full doses as 10 or 20 grains, once or twice a day, to act as a sedative, and promote evacuations when the stools are scanty and accompanied with considerable straining.

Opium is another very valuable remedy in acute dysentery. It is seldom prescribed alone, but generally is combined with calomel as above stated, or with ipecacuanha. It can only be administered in the form of pill in doses of two grains three times a day. The source from which it is obtained is from the capsule of the *Papaver somniferum* by making longitudinal sections into the capsule and allowing the juice to exude and concrete. It is composed of vegetable gluten, morphia, narcotine, and codeia and other substances. The objects for which opium is given in dysentery are to allay the irritation which exists in the bowels, to prevent the frequent and distressing calls to stools and the griping, and to promote sleep. It may also act upon the skin as a sudorific. Opium is objected to by some people on the ground that it masks the active symptoms, but upon the whole it is a very valuable remedy. Ipecacuanha is another of the remedies used in the treatment of dysentery. It consists of the powdered root of the *Capchaelis ipecacuanha*, a plant of the natural order *Rubiaceæ*. It may be administered in doses of 2 or 3 grains, three or four times a day, in the form of pill, generally combined with other substances. The object of its administration is to act as a sudorific, and it is known to possess a peculiar efficacy in the above-mentioned disease.

Occasional purgatives are very necessary in the treatment of dysentery; castor oil, or the oil expressed from the seeds of *ricinus communis*, a member of the natural family *Euphorbiaceæ*, stands unrivalled for this purpose. It is usually administered combined with some aromatic water, with five or ten drops of the tincture of opium, in doses of  $\bar{z}$ i. at a time, with the object of removing scybalæ and other irritating matters lodged in the intestines, and it likewise relieves the scanty evacuations which are very troublesome. Sometimes more powerful purgatives are

administered, as the pulv. jalap. co. in ℥i. doses, (a composition of jalap, ginger and the bitartrate of potash,) where there is reason to suppose that the intestines are loaded with a great quantity of fecal matter.

Injections are very valuable adjuvants to the above mentioned means: these may be composed either of anodyne substances or astringents; the former is composed of ℥i. of laudanum in ℥iv. of congee water to allay irritation, particularly if there is much straining, and difficulty of voiding urine; the latter are composed of astringents or the sugar of lead, to produce their constringing effects.

In chronic dysentery nearly the same remedies are applicable. Abstraction of blood by leeches will be quite sufficient, and the milder preparations of mercury, e. g. blue pill, a compound of mercury, liquorice root, and conserve of roses, given in doses of two or three grains combined with the same quantity of ipecac. and opium. It is given for its alterative effects. Astringents are valuable in this form of dysentery, as the sugar of lead (plumbi. acetate) and the sulphate of copper. The former is obtained by the action of acetic acid on the carbonate of lead. It is generally administered in the form of pill combined with opium, in doses of two grains thrice a day. It diminishes exhalation from the mucous surface of the intestine, and thereby produces its astringent effects. The sulphate of copper is produced by the action of sulphuric acid on copper; it is a fine blue colored salt, and is given in doses of from  $\frac{1}{2}$  to one grain in combination with opium, three times a day. It acts in the same way as the above-mentioned. Blisters in this form of the disease are very valuable. They are usually raised by the application to the surface of either the tinctura lyttæ or the emplastrum lyttæ. The former is of a light red color, composed of Spanish flies, macerated in rectified spirits; and the latter is composed of ℥i. of powdered Cantharides to ℥i. of lard. It is the stronger of the two preparations. The former must be rubbed on the surface, and by its local irritant action it acts: the latter is generally applied laid upon a piece of leather. They require from twelve to twenty-four hours to produce their effects. There is a substitute for the Spanish fly in this country, viz. the Milabris Chichorea, which is said to be more powerful in its effects.

The different remedies used in the treatment of Cholera will depend upon the stage of the disease.

In the first stage calomel combined with opium, in doses of grs. 10 of the former with gr. ij. of the latter, made into a pill, may be administered and repeated in an hour or two, to act as a sedative and to repress the abundant watery stools. The form of pill is advantageous because the stomach is in a very irritable state, and consequently will not bear liquid medicines. To relieve the vomiting, one of the first symptoms, nothing is found so beneficial as a mustard plaster over the epigastrium. The mustard is procured from a plant belonging to the order Umbelliferae the seeds are the officinal part, and there are two kinds, the black and the yellow: the latter is generally used; these are bruised and form the common substance known under the name of mustard. The mustard plaster is prepared either with cold or hot water, or with vinegar; the first is the best; the 2d and 3d are said to dissipate the volatile oil on which the action of the remedy depends. In the second stage where depression of the system sets in, stimulants are indicated, for which the preparations of ammonia, camphor and ether are preferred, owing to their volatile nature, and by which the aggravation of the secondary symptoms will be avoided. The preparation of ammonia most commonly used is the carbonate. It is white, solid, occurring in small pieces, possessing a pungent odour and administered in combination with effervescent

draughts in dose of 4 grains to a dose, to rouse the system and prevent collapse. Camphor is procured from some of the plants belonging to the family of Laurineæ, but especially the *Laurus camphora*. It is a white resin occurring in cakes, and is not blackened by heat. It has a peculiar odour by which it may be readily distinguished. It is given generally in combination for its stimulating effects.

Sulphuric ether is a very valuable diffusible stimulant—it is generally administered in the liquid form in combination with liqr ammoniæ. It is a white, limpid fluid, possessing a peculiar ethereal odour and a cooling taste (:) the object of its administration is to act as a diffusible stimulant. It is prepared by acting on alcohol with sulphuric acid.

In the third stage of cholera where cerebral congestion is threatening, leeches may be applied to the head, and blisters to the nape of the neck, with the view of preventing an effusion of serum into the ventricles; their action and preparation have been before mentioned. During the convalescence, preparations of soda are given, which mix with the inspissated bile in the gall bladder and promote its expulsion.

The different remedies used in the treatment of Intermittent Fever are, first, blood-letting. In the cold stage this had been recommended by Dr. Macintosh, with the view of preventing internal congestion. Dr. Twining likewise advocates it, but it is not generally adopted; there is a little or no use of any internal remedies, and the covering up of the patient in blankets is the best mode of determining to the surface. In the hot stage leeches may be applied to those parts which evince a tendency to congestion, and in the sweating stage, bleeding is quite contra-indicated. The chief object in the treatment is the removal of the exciting cause, whether it depends on malaria or any such cause. Purgatives are used to clear the primæ viæ. The most valuable of all remedies are tonics and antiperiodics—for which quinine is very useful and efficacious. It is the alkaloid from the cinchona bark. Its properties are, that it is a white crystalline powder which possesses very little taste. It is given generally in powders or pill made up with conserve of roses in doses of 2 or 3 grains during the intermission—or immediately before the accession of the paroxysm, which it frequently cuts short.

In the treatment of remittent fevers the two most powerful remedies are calomel and quinine—local bleeding is sometimes indicated but in its use great caution is necessary; it is only admissible in the hot stage. Calomel in large doses, gr. xx., given in powder, is very useful, and seems to do more good than most other substances. Its action is not well understood. Quinine in large doses is also very beneficial, grs. v. during the remissions. It is given for its tonic and at the same time antiperiodic effects—the system being much debilitated in such cases. If coma sets in, blisters for the sake of producing a revulsive effect must be employed.

2. The family of *Apocynæ* produces one very valuable and yet dangerous remedy. It is strychnine. The plant yielding it is *strychnos nuxvomica*—the seeds are the officinal part. They are circular, of a brown color, covered with a hard testa and little hairs, on the surfaces. The active principle depends upon an alkaloid. It is a white powder—which is poisonous to all classes of animals.

The uses of strychnine are chiefly in paralytic affections when it is very beneficial. It is found to be more valuable in those cases of paralysis depending upon derangement of the spinal chord. In amaurosis, an affection of the optic nerve, it has also been found successful. It has been used in impotency. The doses of this substance is from  $\frac{1}{8}$  to  $\frac{1}{2}$  grain the utmost, dissolved in some liquid so as to enable it to be equally divided.



The medicinal substances procured from the family of Polygonæ are, 1st, the rhubarb. This is the produce of the root of the *rheum palmatum*. There are several varieties of rhubarb known in commerce, as the Turkey, China, Russia, &c. which differ more or less from each other in their active properties and appearance.

*Physiological effects.* On some animals it acts as a purgative.

On man its actions are purgative, tonic, and astringent.

As a purgative it is very useful in cases of diarrhœa, combined with magnesia, where it acts not only as purgative but also as a tonic and astringent. As a purgative for children it is very extensively used. In relaxed habits and constitutions it is the best purgative that can be administered, in small doses as from 2 to 5 grains, 3 or 4 times a day; it promotes the appetite, assists digestion, and is therefore used in dyspepsia. Its uses as an astringent are not very extensive.

The dose of the powder of rhubarb is from two to five grains as a stomachic, and from 15 grains to ℥i as a purgative.

The dose of the extract of jalap is from gr. x. to xv.

The dose of the tincture is from ℥ss. to ℥i.

Of the *pil. rhei co.*, a compound of rhubarb, aloes, myrrh, and oil of carraway the dose is from two to three pills.

The family of Laurineæ produces several aromatic substances, and among the rest the *Laurus Camphora*—which yields the camphor. It is prepared by cutting the branches of the tree, from which the juice exudes, this is boiled and stirred with a stick to which it adheres: camphor is a white resinous substance possessing a strong odour and hot taste, insoluble in water, but soluble in spirits. Its active principle depends upon a volatile oil. Camphor is a valuable diffusible stimulant, antispasmodic, and sometimes carminative.

For its stimulating effects it is used in cholera, and for its antispasmodic effects in chordee and in irritability of the muscles attendant upon operations, when it is usually combined with opium. The dose of it is from 4 to 8 grains.

The family of Umbelliferæ produces many aromatic and carminative substances, as the carraway, marjoram, fennel seeds, &c., which are used for dietetical purposes and as condiments.

The most important of its productions is the gum resin *assafœtida*, which is procured from the plant called the *ferula assafœtida*. It is procured by incision. Has the appearance of a gum resin, possesses a very offensive odour, by which it may be at once distinguished. Its physiological effects are, principally, antispasmodic and tonic. It is used principally in hysteria, epilepsy, chorea. In dyspepsia and flatulent colic it is used with success. In some parts of Asia it is used as a condiment. The dose of this substance is from 2 to 5 grains.

The family of Liliaceæ produces two very valuable remedies—squill and aloes.

*The scilla maritima or squill plant.* The bulb the officinal part of the plant.

Its physiological effects are diuretic, and emetic. It is a very valuable diuretic in dropsical affections, and as an emetic it is used in pulmonary affections. The dose of the powder is from 2 to 5 grains; of the tincture from ℥ss. to ℥i.

Aloes is the concrete juice of the *aloe vulgaris*, another member of this family. It is procured by cutting off the roots and allowing the juice to exude, and concrete. Its a dark brown resin, with a brilliant fracture and has a bitter taste. It is a very valuable purgative to horses, some other animals, and on man it likewise acts a purgative, and for

this may be used in torpid conditions of the alimentary canal, in habitual costiveness, also as a revulsive in some cerebral diseases. Its action is chiefly upon the large intestine, and it is said to promote the biliary secretion. The dose of aloes is from 10 grains to 7 as a purgative. The tincture from ʒss. to ʒi., and the extract grains 5 to 10.

The first member of the family Euphorbiaceæ is the croton tiglium, or purging castor. The seeds are the portions used: croton seeds are oval, of reddish brown color, marked with a few yellow lines. The oil is expressed from the seeds, and is the active principle. Croton oil is of a yellow, sometimes reddish color. Its local action is that of a powerful irritant. When taken internally, it is a most powerful hydragogue cathartic, for which it has been used in some cerebral diseases to cause a revulsion. In tetanus it proves useful, in the constipation dependent upon lead colic, and in fact whenever very powerful and speedy cathartic effects are required. It is contra-indicated in all inflammatory states of the intestines, in hernia, &c. The dose of the oil is from 1 to 5 drops.

Castor oil is also produced by expression from the seeds of the ricinus communis. It is a mild, unirritating prostatic, in doses of an ounce, which may be gradually decreased.\*

D. PICACHY.

### MATERIA MEDICA.

*Answer to question 2nd.*—Medicinal substances obtained from—

Nux vomica, active principle strychnine It may be extracted from the plant (the seed) by water and alcohol. It is an

Apocynæ. energetic poison, causing spasm, convulsions, coma, and death. It is used as a medicinal substance in the various forms of paralysis, such as hemiplegia, paraplegia, in palsy and functional amaurosis, &c.

Dose to commence with  $\frac{1}{16}$  or  $\frac{1}{8}$  of a grain, and gradually increasing to gr. i, carefully watching the effects produced by its use.

Polygoneæ. The various forms of rhubarb, active principle rhabarberin. It is soluble in alcohol. Upon man it is stomachic, astringent, tonic and purgative. It is a good purgative for children, and is used in dyspepsia, diarrhœa, and in a state of convalescence from other diseases. Dose grs. v. to xx.

Cinnamon is of a sweet, pungent, aromatic taste, and yields a red colouring matter. It is astringent, tonic and aromatic,

Laurineæ. used in diarrhœa and dyspepsia, and to disguise the taste of several medicinal substances, and prevent the griping caused by the introduction into the system of others. It is also used in flatulent colic and certain other disorders of the stomach. Dose grs. v. to xx.

It is sparingly soluble in water to which it communicates a fine agreeable taste. It is a sedative poison. On its first introduction,

Camphor. however, into the system it stimulates the vascular system and quickens the pulse; but this state is temporary, and is soon followed by depression. Camphor is also an antispasmodic and diaphoretic, used in functional and spasmodic diseases of the nervous system, such as hysteria, epilepsy, chorea, &c. As a stimulant it is given in the latter stages of cholera and fever. Dose grs. v. to x.

\* A few only of the replies in this subject and in Medical Jurisprudence have been published:—the whole were too extended and voluminous.

**Assafetida.** It is a fetid gum-resinous substance, of a disagreeable smell and nauseous taste. It is stimulant, diaphoretic

**Umbelliferæ.** and antispasmodic. It is used in hysteria, chorea, epilepsy, and a variety of other nervous diseases, in dyspepsia and colic. It is also used as an emenagogue. Dose grs. ij. to v.

Several other gum resins are obtained from this family, but it is not necessary to enumerate their properties in detail, as they more or less partake of the properties of assafetida, which is in consequence regarded as the type of the whole class.

**Conium** is a narcotic poison. It produces convulsions, coma and death: used as a sedative in chronic catarrh, cough, chronic, bronchitis. Dose gr.  $\frac{1}{6}$ .

**Onion** contains a great quantity of nutritive principle, and is used as an article of diet; also an acrid volatile oil, used as a poultice in ear-ache.

**Aloes.** The active principle is aloesine, which may be extracted by water and spirit, it is of a bitter taste, and is soluble in alcohol. In very small doses it increases the secretions of the alimentary canal and promotes digestion. In larger doses it produces purgative effects; it is a safe and sure purgative, ranging between rhubarb and senna. It produces peristaltic movement in the large intestine, it increases the functional activity of the chylo-poietic viscera and also of the uterine system in the female. It is used in dyspepsia arising from derangement of the chylo-poietic viscera, in disorders of menstruation (amenorrhœa and dysmenorrhœa) to re-induce hæmorrhoidal fluxes where their suspension causes headache and other troublesome symptoms. It is also used to derive, as the phrase is, "from the head." It is contra-indicated in pregnancy, because it has then a tendency to produce abortion. Its dose is grains v. to x.

**Active principle scillitina.** Squill yields its active principle to rectified spirit and acetic acid, which are its officinal menstrua. It is of an exceedingly bitter taste. Physiologically it is a diuretic, emetic and expectorant. As a diuretic it is one of the most valuable obtained from the vegetable kingdom, and is used in dropsy, suppression of urine, &c. It is contra-indicated in granular disease of the kidneys. As an expectorant and emetic it is used in chronic catarrh and bronchitis, in humid asthma and croup, &c. Its dose as a diuretic is grains ij. to v.

" " an expectorant ,, grains ij. to iij.  
" " emetic ,, grains x.

**Euphorbiacæ.** Croton—the seeds are officinal, they are oblong and of a brown colour, they contain an oil on which their medicinal properties depend. This oil is a powerful and violent purgative, producing in very small doses cathartic effects, but in larger ones griping, irritation, and gastro-enteritic symptoms. It is used in cases of obstinate constipation, in inflammatory diseases of the brain, in dropsy and other cases where we want to produce watery evacuations. It should not be given in cases of mechanical obstruction of the bowels. Its dose is from mi. to iij., best given in combination with castor oil. Ricinus communis yields the castor oil; the oil is obtained from the seeds. It has a very nauseous taste. It is a very mild purgative, and exceedingly well adapted for common use. Its dose is  $\bar{z}$ ss. to  $\bar{z}$ ij.

**Answer 5th.** The distinguishing physiological characteristic of tartar-emetic as an emetic arises from the circumstance of its effects being accompanied by a general depression of the system, hence it is preferred to

other emetics in those cases where we want not only to evacuate the stomach, but along with it to produce a depressing effect upon the constitution, such as in fever and inflammation. In the latter it is given more as a sedative than an emetic, and is more beneficially used when the affection is seated upon the mucous membranes than the serous ones. Its dose as an emetic is gr. i. to iv.

The sulphates of copper and zinc on the other hand, are instantaneous in their operation, and produce speedy evacuations from the stomach, without affecting the constitution in any other way, except whatever shock it may receive from the mere effort of vomiting. They are used in cases where the evacuation of the stomach is the only object in view, such as in cases of narcotic poisoning; their dose as emetics are grs. v. to xv.

Ipecacuanha as an emetic is much used in several diseases of children, such as bronchitis, croup, hooping cough, &c.

It is also used in febrile diseases both of children and adults. Its operation is attended with little constitutional affection. It is given in the form of pulv. ipecacuanh and vinam ipecacuanh. The dose of the former is grs. v. to xv. and of the latter ʒss to ʒiv.

Squill as an emetic is very uncertain in its effects and is therefore little used as such. It does not affect the constitution. Its emetic dose is grs. x. It is given in the form of vinum and tincture and used much in the same cases as the former.

NOBINKRISTO BOSE.

#### MATERIA MEDICA.

Answer 1st. The different remedies used in the treatment of acute dysentery are the following:

First general blood-letting, (if it may be called a remedy) the quantity of blood to be taken from the system should be regulated according to the constitution of the patient and the urgency of the case, for instance few natives are bled here for acute dysentery, and on the other hand few Europeans escape blood-letting, though not invariably but as a general rule it is correct. The second class of remedies are leeches, derived from the animal kingdom, and belonging to the division invertebrata, the number in which they should be applied vary also according to the urgency of the symptoms, especially pain. The third class of remedies are mercurials, used in the forms of calomel and blue pill. I forgot to mention, mild purgatives. The doses of calomel vary much, the extremes being between three and twenty grains; when given in small doses it is generally combined with other remedies, as colocynth. When given in large doses it is generally given alone to effect a sedative action. The source of calomel is the mineral kingdom. Calomel consists of two equivalents of mercury and two of chlorine, it is a milk white powder when pure (and hence the name is incorrect,) very heavy, insoluble in water, acted on by lime water forming the black wash; it is prepared by heating mercury with sulphuric acid as long as the bipersulphate of mercury is formed, then decomposing this substance by chloride of sodium and adding another proportion of metallic mercury, otherwise corrosive sublimate will be formed: it is generally given to procure a sedative action. Blue pill is given in conjunction with other remedies as ipecacuanha and gentian in the proportion of two grains which is the common dysenteric pill used in the hospital; also in combination with opium; another sort of dysenteric pills used in the hospital, in the proportion of four grains of blue pill, two of ipecacuanha, and one of opium.

It is prepared by mixing mercury two parts, liquorice one part and conserve of roses three parts ; it is a dark looking substance having a peculiar odour, given with the view of procuring an alterative action. The next remedy is opium used in the forms of extract, tincture, and in combination with other remedies, as in the forms of compound ipecacuanha powder and compound kino powder.

The source of opium is the natural family *Papaveraceæ* ; the solid extract of opium is given in the dose of from one to two grains in conjunction with other remedies, the tincture is used in the form of injection also ; the extract is prepared by adding boiling water to opium and heating.

The tincture is prepared by adding one part of opium to twenty parts of spirit ; as injection it is used with decoction of starch ; laudanum is a dark looking substance having a colour and smell like opium ; internally its dose is from xx. to xxx. minims ; in the form of tincture opium is used as an anodyne ; in the form of extract it is used as an antiphlogistic sedative. In conjunction with other remedies opium is used, as compound ipecacuanha powder, which consist of opium ℥j. ipecacuanha ℥j. and sulphate of potash ℥viii. is given in ten grain doses, the object being to procure diaphoresis. In the form of compound kino powder opium is used as an astringent in ten grain doses.

The next remedy is ipecacuanha ; the source of this plant is the natural family *Rubiaceæ*, it is given in the solid form, as compound ipecacuanha powder as mentioned below, as compound ipecacuanha pills and as vinum ipecacuanh. ; it is generally given in combination with other remedies ; compound ipecacuanha pill consist of ipecacuanha, squill ammoniacum and syrup ; dose from grs. xv. to xx. Ipecacuanha, and its preparations are used for their antidyenteric virtues.

The next class of remedies are the astringents ; those obtained from the metallic kingdom, are acetate of lead and sulphate of copper, the former prepared by the action of acetic acid upon lead, it is given in the dose of ten grains, and used for its astringent properties ; sulphate of copper is prepared by the action of sulphuric acid upon copper, dose is from grs. ii. to iii., it is given with the same object as the last, used also as an injection ; acetate of lead is also used as a suppository.

Plumbi. acetas grs. x., ext. opii. grs. iv. and sapo. dur. a sufficiency. The next remedy is Gentian, the dose and use of which had been already noticed. Then aconite, the source of which is the natural family *Ranunculaceæ*, has been also recommended in the form of extract and of tincture, the object being to procure a sedative action, and the next remedies are those derived from the *hyosciamus niger* used as extract in doses of two grains. I forgot to write in the first part of the paper mild purgatives as castor oil, which should be given in an ounce dose : the source of this oil is *Rieinus communis*, it is a colorless substance having a nauseous odour ; compound jalap powder is sometimes used, but it is rather irritating ; these are I suppose among the most of the valuable medicines used as remedies in the treatment of acute dysentery.

The remedies used in the treatment of chronic dysentery are mild purgatives, as castor oil, blisters derived from the Spanish fly ; these are applied as counterirritant, mustard sinapisims derived from the *Cruciferæ* : blue pill is often used in conjunction with colocynth ; in this chronic form the astringents are very valuable. The medicines used in the treatment of cholera are the following. The first remedy is calomel in combination with opium, in the proportion of ten grains of the former with two of the latter, the object being to stop the purging ; the next medicines are effervescing draughts, as of hydrocyanic acid and carbonate

of soda in the proportion of ten grains of the latter with five drops of the former in eight ounces of water. The next remedy is camphor derived from the natural family Laurinæ, used both in the solid form with blue pill and colocynth; also as camphor mixture along with other stimulants as spirit of sulphuric ether ℥iv. and liquor of carbonate of ammonia ℥ii. and camphor mixture ℥viii., dose being ℥i. every half an hour; camphor is also used in camphor liniment. When symptoms of congestion appear dose of calomel may be increased to a scruple. Next remedy is turpentine derived from the natural family Coniferæ: it is used in the form of friction to bring again the temperature of the body; the next remedy is sulphuric ether used as stimulant, of the dose of which has been previously mentioned; the next remedy is ammonia used in the form of liquor ammoniæ carbonatis. The medicines used in the treatment of intermittent fevers are the following. 1st. Tartar emetic derived from the metallic kingdom. Prepared by takings esquisulphuret of antimony, nitrate of potash, muriatic acid, bitartrate of potash and water. Nitrate of potash is decomposed, converts a part of the sesquisulphuret into sesquioxide of antimony and sulphuric acid, this sesquioxide unites with the remaining sesquisulphuret to form pure crocus or oxysulphuret of antimony, whilst potash had united with the acid to form sulphate of potash; muriatic acid is added to prevent the formation of sulphuret of potassium, or decompose it as soon as it is formed, also to neutralize free potash, the crocus is next decomposed by bitartrate of potash, and the result is tartrate of potash and antimony, whilst sesquisulphuret remains behind. It is given in ague for its emetic action, and consequently the dose is two grains dissolved in eight ounces of water, the half of this should be taken, and after twenty minutes the other half. It is a white powder, having a metallic taste and nauseous odour. It is also used as a diaphoretic, as in nitre mixture. The next medicines are purgatives, as compound jalap powder, prepared by mixing jalap, ginger and bitartrate of potash; it is a brownish looking substance, sparingly soluble in water, has a very nauseous taste, used in drachm doses; other purgatives are also used, as calomel and colocynth. The next class of medicines are diaphoratics and I mentioned tartar emetic as one of them; Dover's powder is used in doses of from ten to twenty grains. The next great class of medicines are those denominated under the name of fabrifuges and anti-periodics; and the best of them is disulphate of quinine. This is best prepared according to the process of the Edinburgh Pharmacopœia. Take yellow bark, carbonate of soda, sulphuric acid, and water.

The London Pharmacopœia takes yellow bark, hydrated oxide of lead, animal charcoal, sulphuric acids and aqua ammoniæ: the chief object of both of these Pharmacopœias is to exhaust the yellow bark of its bitterness, decomposing it by an inorganic base, and then when the quinine is precipitated adding sulphuric acid.

According to the Edinburgh Pharmacopœia boiling solution of carbonate of soda is poured upon yellow bark, then sulphuric acid is added to the mixture and then decomposing by carbonate of soda, and again adding sulphuric acid; quinine is generally given in the form of powder and in two ways; that is, a large dose before the paroxysm occurs, as three or four grains, or in small doses during the intermission: the disulphate consist of one equivalent of quinine, one of sulphuric acid, two of water of crystallization. It is a crystalline white powder, intensely bitter, inodorous, and slightly efflorescent in the air. Quinine is also given in the form of mixture. It is given with the object of preventing accession of the paroxysm. The other preparations of bark are not much used from there being so valuable a substance as disulphate of quinine. The

next remedy acting as a febrifuge is arsenic given in the form of liquor arsenicalis, in the dose of from five to ten drops, it consists of arsenic, potassium, and water. Another febrifuge is opium, which is given in large doses before the expected paroxysm.

The remedies used in the treatment of remittent fevers are likewise emetics, purgatives, good doses of calomel and large doses of quinine. We should treat this fever more actively and antiphogistically than the last; in the first stage of congestion we should use blisters to the nape of the neck, and sedative doses of calomel. Most of the remedies used in this fever have been already described in intermittent fever.

KALY DOSS NUNDY.

### MEDICAL JURISPRUDENCE.

1. The most certain signs of death are the commencement of putrefaction, the non-contraction of the muscles on the application of the galvanic battery, and their cadaverous rigidity. During the continuance of life, the different chemical agents which enter into the composition of the body are retained under control, the vital laws predominating over the chemical. But when vitality ceases, the chemical agents of the body act as under ordinary circumstances, in consequence whereof the body is decomposed, and its elements dispersed in various directions; but it must be observed that so long as the least spark of vitality remains in the system, no putrefaction can begin or take place.

With respect to the non-contraction of the muscles on the application of galvanism it may be stated, that while the negative evidence which it gives, is sure and unquestionable, its positive evidence is by no means so; that is to say, that although if the muscles do not contract on the application of galvanism, we may be sure of the individual being dead, we cannot be equally sure of his being alive, if the muscles do contract on the application of the above agent.

Cadaverous rigidity as distinguished from common rigidity, has been mentioned as one of the certain signs of death. The difference between the two consists in this, that while in cadaverous rigidity the muscles once reduced, do not resume their former state, in common rigidity they do so when set at liberty.

The uncertain signs of death are numerous. They consist in the apparent suspension of those functions which a man exhibits during life; and some of which we know from physiology to be essential to the continuance of life, and therefore the suspension of which is incompatible with its further continuance. Among these may be mentioned the want of pulse and the cessation of respiration; but although it is true that both circulation and respiration cease with life, yet very frequently they go on in such a nice and delicate manner as to be quite imperceptible to and irrecognizable by our senses in their present state; and in fact instances are very common of individuals remaining, for various periods of time, without the slightest indication or earthly sign of their circulating or respiratory functions going on, yet who have recovered and lived for varied lengths of time. Another of these signs is insensibility with perfect rest. It is undoubtedly one of the signs of death, but as it may also exist under other circumstances and quite independently of death, as for instance when a man is under the influence of opium, or alcohol, or mesmerism, as also in cases of compression of the brain, &c. it would be quite unreasonable to suppose a man to be dead merely because he is insensible and motionless. Besides we know from physiology

that the organic functions of the body may go on and vegetative life exist, notwithstanding the suspension of the mental faculties and consciousness. Nor are facts wanting to confirm the truth of this assertion; thus the case mentioned by Sir A. Cooper, in which a spicula of bone was pressing upon the brain, and in which the individual remained for a year in a state of perfect insensibility, after which spicula of bone being removed he was restored to consciousness, is quite to the point. Coldness of the surface and the extremities is another of these signs; and although it is true that the animal heat of the body subsides, and its surface becomes cold after the cessation of life, it is justly reckoned among the uncertain signs of death, in consequence of its existing under several circumstances during life, as for example in the last stage of cholera, &c. Relaxation of the sphincters, and involuntary discharge of urine and fœces is also an uncertain sign, because this may and frequently does occur under the influence of several diseases, such as malignant and typhoid fevers, epilepsy, &c.

Besides these certain others are mentioned among the signs of death, such as opacity of the cornea, loss of transparency in the palms of the hand, bending of the thumb towards palm of the hand, a degree of muscular rigidity, &c. but these are of little value in guiding us to recognise a true death from a merely apparent one, since they frequently occur, and are known to exist in several diseased states of the body.

Upon the whole it may be stated that what have been mentioned among the uncertain signs of death, taken each individually and separately, is of little or no absolute value, hence no dependence can be placed upon them; they only become of weight when considered in connection with the other collateral and co-existent circumstances, and their value is therefore only of a relative kind.

2. Independently of climate, the sources of disease in Calcutta are numerous and manifold, arising either from want of proper attention to public health on the part of the authorities; or the poverty and ignorance which prevail among the greater part of the inhabitants of the city. Those arising from the former of these causes may be enumerated under the following heads.

1st. *Want of public cleanliness.*—On passing along the streets nothing can be more common than to witness here a dead horse, there a putrid dog, and in a third place a heap of accumulated dirt. From these emanate a variety of noxious effluvia, giving rise to several malignant fevers and epidemic visitations, which carry off numbers from this so-called “city of palaces.”

2d. *Want of good draining.*—The English part of the town excepted, there is scarcely any quarter where during the rainy seasons the water does not stand still and accumulate. There are several streets in which the water in the drains rises on a level with that in the road itself, the one being undistinguishable from the other, and it may enter into several houses situated upon it; as an instance of this I may mention the road leading from the *Shiddessory Tollah*, eastward of *Thunthana*. Besides the drains are seldom to be found in a properly clean state, several of the large ones being allowed to remain in a dirty state for a length of time after the rains, during which the waters in them become stagnant; and as these waters are mixed with a variety of dirty and disgusting things, such as dung, urine, decomposed vegetable and animal matters, &c., they exhale a most unwholesome and fetid odour, and evolve deleterious gases, which may be considered as carrying diseases into the neighbouring houses.

3d. *Not watering the city as it should be done.*—Except when the streets of this city are annually watered by the hand of nature, scarcely



a drop of water is poured upon them at the public expence to prevent the accumulation of dust, which particularly at this season of the year flies over the roads in forms of clouds, causing great nuisance to the passengers, and in several instances the particles of dust getting into the lungs give rise to affections of those organs by causing irritation in them. It is scarcely necessary to mention that proper watering is also indispensable to the preservation of even ordinary cleanliness.

Those to which the poverty or the ignorance of the people give birth, are resolvable into the following heads.

1st. *Bad food.*—The consumption of different sorts of bad rice, putrified fish, of rice boiled on previous days, and a variety of other things taken into the stomach either from poverty or ignorance, (the taking of large quantities of sweetmeats being a nice example of the latter) have been found by observation and experiment to be prejudicial to health; yet these are substances in frequent and daily use among the native population of the city.

2d. *The drinking of Ganges water from mistaken piety.*—It must appear to every sensible man, even on a moment's reflection, that the water of a spring, and that from a part of it in which is discharged the whole of the dirt of this large city, in which open the large drains, carrying the waters from different parts of the town, and wherein is thrown a large number of dead human beings and other animals, together with the presence of certain saline matters, must be highly deleterious to the health; yet under the influence of a superstitious faith, the natives are taught to venerate the thing, and drink it under the conviction of some peculiar moral virtues being attached to it.

3d. *Want of proper clothing.*—It is not uncommon to meet with numbers in this city who seldom change their clothes, retaining them until they have been full of dirt, or even vermin generated in them, and it is easy to conceive how this may prove a source of disease. Besides in consequence of poverty many cannot provide themselves with sufficient clothing, which obliges them to expose themselves without sufficient covering to the cold and the dews, which subject them to a variety of affections.

4th. *Want of cleanliness.*—This is particularly to be witnessed in the people of this city in a variety of forms, and is a very prolific source of disease.

5th. *Want of proper ventilation.*—This is owing to the construction of houses in a bad manner, and the jumbling together of a large number of cottages. Besides there are also other causes of disease, such as the salt lake on the east of the city, the air of which is very insalubrious.

With respect to these and the other causes of diseases which may be present in Calcutta, it is necessary that such medical police regulations be enacted as would rigidly enforce the observance of cleanliness, institute a good system of draining, watering, and ventilating the city, as would prevent the people from eating at random any thing they like, but subject to a medical examination the articles of food before they are distributed and consumed; prepare good tanks at suitable distances from which the people may be supplied with water, and prevent the drinking of the so-called "sacred water."

6th. The causes of death from hanging are asphyxia, apoplexy, asphyxia and apoplexy combined, and fracture of some of the cervical vertebræ or rupture of the ligaments. When death has taken place by apoplexy, the cerebral vessels, especially the veins, would be congested in consequence of the blood being unable to return by reason of pressure upon the jugular veins, the face flushed and the eyes are injected, the

serum would be effused, and sometimes the blood extravasated in the eucephalon. When by asphyxia, we shall find the right heart full of blood and the left comparatively empty, the veins distended and gorged with blood, and the arteries containing venous blood.

When by a combination of the two, we shall find in the post mortem examination the appearances presented by either combined, the one or the other set predominating, according as apoplexy or asphyxia has taken the lead in causing the death of the individual. When the death has been caused by some injury of the spinal column, the same may be perceptible on dissection. To determine as to whether the case is one of suicide, homicide, or accident, we must abide by the following circumstances. We are to examine the countenance of the individual and mark as to whether it looks like that of one who has been labouring under some mental depression or anxiety, such as denoted by a pulled down appearance, a haggard look, sunk eyes; or does it look like that of one who had been labouring under fear or engaged in some struggle, as denoted by a pale or a turgid face. We are also to look for any marks of violence that may be present upon his body. We are further to attend to the height from which the individual is hung; and learn the previous history of the case if that be within reach. Now then, if on examination the individual presents a haggard appearance, with eyes sunk, and if by his previous history we can learn that his worldly circumstances had been bad; that he had suffered some very severe misfortunes, or that he had been habitually disposed to melancholy; and if further we find that the distance from which he has been hung is within reach from the ground, or if higher, a chair or some such thing from which it might be reached, present under, and if withal there be all absence of any violence upon the body, and no suspicion of malice is attached against him to any other person or persons, there is good reason to conclude that the case is one of suicide.

If, on the other hand, an opposite combination of circumstances be present, i. e. if the individual appears like one taken up with fear and dismay, if his previous history contain nothing which might have led him to the commission of suicide, and if marks of violence are present upon his body, and if further the distance from which he was hung be beyond his reach, the case appears to be one of homicide. The marks of violence are particularly to be attended to, in as much as hanging is by no means the most convenient form of murdering a person, and as it can hardly be executed without a great opposition from him, and much previous struggle having taken place, marks of violence, can seldom or never fail to be present when a person has been forcibly hung by others. The hand and the feet are also generally found tied.

Cases of hanging are seldom accidental, but although seldom they sometimes do occur, and when so they may be recognised by the absence of all those circumstances which attend either suicidal and homicidal cases of hanging, and more particularly the peculiar way in which the string may happen to be twisted around the neck of the individual, denoting, in general, a want of all design in the contrivance.

7th. The appearances denoting recent delivery during life, are—

Dilatation of the vagina, a tumid and swollen state of the external genitals, such as of the labia; a relaxed state of the abdominal muscles, and the round contracted state of the uterus, which may be felt through the abdominal parietos. After death and on dissecting, the mark of the placenta where it was situated upon the uterus may be seen; the latter is also found much larger than under ordinary circumstances, and the *croix* has not yet regained its natural state.

## MEDICAL JURISPRUDENCE.

Answer 3rd. The usual causes of death from drowning are asphyxia, apoplexy, a combination of both, and syncope. The post mortem appearances in death from asphyxia are, great congestion of the lungs, the veins will be found gorged with blood, the face will be pale and placid, and there will be froth issuing from the nose and mouth, very little water will be found in the stomach; these latter are present in most cases of drowning. In death from apoplexy, the brain and its membranes will be highly congested, or there may even be the rupture of a blood-vessel, the face will be turgid and livid, there will be frothy mucus oozing from the mouth and nostril, &c. In death from a combination of these two, the symptoms will vary, and the predominance of one set over the other will depend on the presence of asphyxia, or apoplexy, in a more marked degree. In death from syncope the brain will be found almost entirely free from blood, it will be seen to be pale and bloodless; the organs of the thorax and abdomen may have their normal supply of blood.

4th. After a body has been taken out of water all clothes, ligatures of every kind, &c. should be removed; it should then be immediately wiped dry, and the heat of the surface may be restored by incessant friction with dry flannels, aided by a large fire being placed in the room so as to communicate some degree of warmth, (care must be taken however to get rid of the carbonic acid generated, by means of a good current of air :) artificial respiration ought then to be had recourse to, and this may be effected by firmly pressing upon the chest with the palms of the hands and then suddenly removing the pressure; in this way air will be drawn into the lungs, and of the continuous use of this means, great benefit has frequently resulted; some introduce a pair of bellows into the mouth and gradually force air into the lungs; this, however, is objectionable, as also the inflation of the lungs by blowing into the mouth: ammonia should be applied to the nostrils, and it is recommended to, to use oxygen gas for the purpose of inflating the lungs; this is seldom at hand, and is therefore rarely employed. These are the only means I have seen resorted to.

The length of time after *complete* submersion that you may expect to resuscitate any individual, is I think from one minute to a minute and a half, although there are cases recorded where persons are stated to have been recovered even after 2, 3, or more *hours*: in these cases, however, there was probably only partial immersion, or the presence of syncope might have prolonged the period of death.

As to the amount of perseverance in the use of the several remedies before mentioned, there is considerable variation: in general after incessant application of the remedies, for  $\frac{1}{2}$  or  $\frac{3}{4}$  of an hour, or even one whole hour, if there be no signs of returning animation, we may consider it unnecessary to continue our exertions any longer; on the contrary, if we perceive the slightest signs of life, we must redouble our efforts, and continue them for a longer or shorter time according to circumstances.

5th. The causes of death from hanging are, from constriction and occlusion of the air-passages giving rise to asphyxia; here, either the supply of air is at once completely cut off, or there is only a partial and gradual obstacle to the passage of the air, in either case asphyxia is the result, and the appearances on dissection will be engorgement of the lungs with blood; the veins and right side of the heart will be found to contain a large quantity of venous blood, while the arterial system will be comparatively empty; the face will be turgid and livid, the eyes

blood-shot and protruding, the tongue will be projected from the mouth, there may be erection of the penis and involuntary discharge of semen: the mark of the cord will be observed round the neck, deep, with ecchymosis external to the situation of the cord; on dissection the cellular tissue immediately beneath, from the pressure of the cord, will be found condensed and shining.

The death may be produced by the cord pressing upon the great vessels and preventing the return of blood from the brain, giving rise to a species of apoplexy: in this case the face will be swollen, and livid, the eyes very prominent and blood-shot, &c.: there will be great congestion, and perhaps rupture of a vessel in the brain; besides these the general appearances from hanging, as ecchymosis, the mark of the cord, &c., will be present. Death may, again, be produced by fracture of the odontoid process pressing upon the spinal marrow, and causing instant death.

Hanging is very seldom the result of accident; the only instance of the kind I am aware of, happened in a man who used to hang himself frequently for the purpose of gaining a livelihood, till at last he effectually hanged himself: it is also liable to occur when persons amuse themselves by swinging; the rope gets coiled round the neck, and either from want of assistance, or from delay, it may prove fatal.

Hanging, when the result of suicide, may be known by the absence of external violence, by the history of the case, by its being done in a room to which others had no access from without, &c., and the odontoid process, generally speaking, not being fractured; and by circumstantial evidence.

When hanging is the result of homicide, perhaps great external violence may be found, particularly if the resistance offered by the individual had been great; by there generally being fracture of the odontoid process; by enquiring into the history of the case, and chiefly by circumstantial evidence.

6th. In a person found hung, to decide whether it occurred before or after death, we must make a careful inspection of the body; if it happened after death, there will be no congestion of the lungs, brain, or any other organ, there will be no ecchymosis in the position of the cord (unless the body has been suspended before the departure of the animal heat of the body) the cellular tissue under the cord will not be found condensed on dissection; there will be no turgidity or lividity of the face; no priapism; no unusual congestion of the venous system; the tongue will not be protruded; generally speaking the odontoid process will be found entire; these aided by an enquiry into the history of the case, will generally suffice to prove that the body was hung after death.

FRED. J. PETTINGAL.

## BOTANY.

*Question 1st.* What is the difference between dicotyledonous and monocotyledonous plants with regards to leaves and stems?

*Answer 1st.* The leaves of monocotyledonous are articulated to the stem, and those of dicotyledonous are not articulated, the stem of endogens is erect and straight, and larger than the stem of exogens.

*Question 2nd.* What are the elementary tissues?

*Answer.* They are five in number, viz.

- 1st. Cellular tissue, or Parenchyma.
- 2nd. Piled tissue, or Bothrenchyma.
- 3rd. Woody tissue, or Plurenychyma.

4th. Vascular tissue, or Trachenchyma.

5th. Laticiferous tissue, or Cenchyma.

1st. Cellular tissue consists of little bladders or vesicles of various forms adhering together in masses. It is colorless and transparent. It is formed according to Schleiden, from cytoblast (cyto means cell, blast,) germ, (cell germ) which is generated from the mucus of vegetation. It, the cellular tissue, consists of two forms, viz., the membranous and fibrous. Membranous cellular tissue is that in which the sides consist only of membrane without any trace of fibre. It constitutes the pith, the medullary rays, soft parts at the stem of exogens and the bark of endogens, and also forms the membranes of fruits and seeds. Fibrous cellular tissue is that in which the sides consist either of membrane and fibre together, or of fibre only. Cellular tissue assumes a variety of forms such as Oenenchyma when oval, Cenchyma when conical-like hairs, Cladenchyma when branched. Colpenchyma when sinuous. Murifarus, when in the medullary rays, consist of little bladders compressed between the woody tissue and spiral vessels, and when viewed laterally represents like bricks in a wall.

2nd. Piled tissue, or bothrenchyma consists of tubes of considerable size, appearing when viewed by transmitted light as if riddled full of holes. It consists of two sorts, 1st, articulated bothrenchyma consists of truncated cylinders placed one upon the other and forming a long cylinder. It can be obtained by boiling the stem of Donax.

2nd. Continuous bothrenchyma consists of slender piled uninterrupted tubes.

3rd. Woody tissue, or plurenchyma, consists of long slender uninterrupted piled tubes, tapering acutely at each other and lying in bundles, and like cellular tissue not perforated on the sides. It differs from cellular tissue by its toughness, extremely fineness, strength and tenacity.

Every thing prepared from hemp and flax is made of this tissue, but cotton which is cellular tissue bears no resemblance in strength to the former. It constitutes the ligneous part of plants present abundantly in liber.

4th. Vascular tissue, or trachenchyma, consists of membranous tubes tapering to each end, and having a fibre generated spirally in the inside, on the walls are marked by transverse bars, lines, or rings. It consists of two sorts, the spiral vessels or trachi, and the ducts: spiral vessels consist of simple membranous tubes, having fibres generated spirally in the inside which are capable of unrolling with elasticity. They look like a wire round a cylinder, and also like a cobweb.

Ducts consist of simple membranous tubes having a fibre generated spirally in the inside incapable of unrolling without breaking. Ducts are of four kinds.—1st, closed ducts, they are like spiral vessels.—2d, annular when like a ring.—3d, reticulated when instead of forming rings, they are continuous in some places, and in others anastomose so as to form a netted appearance.—4th, scalariform when like angular tubes marked with transverse bars scarcely reaching the angles.

5th. Laticiferous tissue, or cinenchyma, consists of branching and anastomosing tubes, which are so thin when young that they are not discernible, but when old become visible.

*Question 3d.* What are the compound organs?

*Answer.* The compound organs are, viz. cuticle and its appendages, such as stomates, hairs, scurfs, glands and prickles.

1st. *Cuticle.* Vegetables like the animals are covered externally by a membrane which adheres to the cellular structure beneath it; when viewed by naked eye appears like a homogeneous skin, but when seen by the mic-

roscope, found to be marked by transverse lines which by constantly anastomosing give it a reticulated appearance. The cuticle is not found in the parts growing under water, and found upon every part of the surface exposed to the air except the spongllets of the roots. The cuticle is covered externally by a membrane framed of organic mucus.

Its appendages are first stomates—they are passages through the cuticle, having the appearance of oval sphinctes, in the centre of which is a slit which opens and closes according to circumstances, and lying above a cavity by a central tissue. Stomates are not found in the submersed plants or in the submersed parts of amphibious plants, they are not found upon the cuticle growing in darkness nor upon the ribs, veins of leaves, but found generally on the under surface of a leaf, not upon the upper. Dr. Brown considers the stomates to be composed of bladders which are like the bladders found often occupying the inner surface of the meshes of epidermis.

Mirbel considers them as minute funnels composed of 4 or 5 vesicles, arranged in several tiers. Stomates are the organs of respiration.

2. *Hairs*. They consist of bladders of cellular tissue, or in other words, they are minute, transparent, filliform, acute processes formed of cellular tissue more or less enlarged and arranged in a single row. The grand divisions of hairs are two, namely, lymphatics and secreting. Lymphatic hairs consist of tissue tapering gradually from the base to the apex. Secreting hairs consist of cellules visibly distended either at the apex or at the base into receptacles of secretion.

Lymphatic hairs are for the most part for the controul of the evaporation of parts where they occur. Secreting hairs are peculiar to certain species of plants, as the volatile oil of sweet briar.

Hairs differ extremely in length, rigidity, and in form.

They have received the following names:

The characters of which I would be unable to answer for brevity of time.

They are, 1st, down or pubescence; 2d, hairiness; 3d, pilosity; 4th, villosity; 5th, velvet; 6th, tomentus; 7th, celæ; 8th, bristles; 9th, pungent; 10th, glandular; 11th, barb; 12th, hooded.

The third appendage of the cuticle is the scurf.

Scurfs are thin flat membranous disks like the scales of fishes, formed of cellular tissue springing from the epidermis. It is of two kinds—scurf properly so called, and the ramenta.

Scurf properly so called is a flattened thin particle, giving a leprous appearance to the parts where it occurs as in the pine-apple.

It is composed of a membrane attached by its middle, and has an irregular laucinated appearance in consequence of the imperfect union of cellular tissue of which they are composed: ramenta are foliaceous parts appearing upon the young shoots. The fourth appendage is the gland.

Glands formed of cellular tissue which is much (harder) and more colored than that which surrounds it. Glands are of various kinds. 1st. Stalked glands when seated upon a stalk; 2d, lenticular glands, they are oval spots in the bark of many plants, especially willows; they have been thought to indicate the points from which roots will appear, if placed in circumstances favorable to their production: glands are either simple or compound.

Simple glands are formed of cells springing from the epidermis. Compound glands contain within them cavities filled with ethereal oil.

The fifth appendage is the prickles. Prickles are rigid, opaque conical processes formed of cellular tissue, and terminating in an acute point.

*4th Question.*—Structure of a leaf and the difference between a simple and compound leaf?

*Answer.*—A leaf is nothing more than the expansion of the bark at the base of a leaf bud prior to which it is developed, and it is composed of cellular tissue. The bark of which it is the expansion is composed of muriform cellular tissue.

A leaf consists of a midrib and veins emerging from the midrib, and of other veins formed by these emerging veins.

A leaf has two surfaces, pagina superior and pagina inferior: pagina superior has sunken veins, and the latter very prominent ones.

The point where the leaves are joined to the stem is called axil, any thing that arises from the axil is called axillary, and that which arises above the axil is the supra axillary, and that from below it is called infra axillary. Stomates are sometimes found on the under surface of the leaf, as I have mentioned before.

The difference between a simple and compound leaf is this—

The leaves are called simple when the margins of them are irregular or dentated, and do not extend to the petiole: or when the blade consists of a single piece only as the serrated blade of the apple tree and of the box tree. The leaves are called compound when the margins are connected down to the petiole, and dividing into a number of leaf buds.

The forms of the compound leaves are the following—

1st. Pinnatifid when the leaflets are arranged on each side of a common petiole.

2nd. Pennate or (paripinatus) when the petiole is terminated by a single leaflet.

3rd. Pinnate or (imparipinnatus) when the petiole is terminated by a tendril.

4th. Alternately pinnate when the leaflets are alternate.

5th. Interruptedly pinnate when alternately small and large.

6th. Decreasing by-pinnate—when the leaflets diminish gradually.

*Question 5th.* Variety of forms of inflorescence.

*Answer.* Inflorescence is a term contrived to express generally the arrangement of flowers on a branch or on a stem.

Its varieties are—1st, The peduncle. The peduncle is a part which immediately bears the flowers, or it is the part which first proceeds from the stem. Peduncle when divided: its larger divisions are called branches, and the smaller pedicils.

The varieties of peduncle—when a plant destitute of stem emerges from the ground supporting the flower on its apex, it is called a scape: when the peduncle proceeds at a right angle from the base to the apex of the inflorescence, it is called rachis.

When the part which bears the flowers is repressed in its development (so that) instead of forming a flattened area it becomes enlarged and dilated on which the flowers are arranged then it is called receptacle.

Hence we have four forms of peduncle. 1st, pedicil; 2nd, scape; 3rd, rachis; 4th, receptacle.

Inflorescence, its variety. 1st, If the flowers are sessile along a common axis, (i. e.) destitute of pedicils, then they are called spike.

2nd. If the flowers are pedicellated along a common axis then they are called raceme. The raceme differs from the spike in nothing more except in its flowers being pedicellated.

3rd. If the flowers of a spike destitute of calyx and corolla, the place of which is supplied by bracts, and when with such a formation, the inflorescence falls off either after flowers on ripening, then they are called an amentum or catkin.

4th. If the flowers of a spike destitute of calyx and corolla, the place of which is supplied by bracts and supported by other bracts which enclose no flowers, and when with such a formation the rachis does not fall off with the inflorescence, then they are called locusta or spikelet.

5th. If the flowers are arranged round a fleshy rachis, and enclosed in the kind of bract called a spatha, then they are called spadix, as in palms and araceæ.

6th. If the lower pedicils are so long that their flowers are elevated up to the same level with that of uppermost flowers, then a corymb is formed.

7th. If the pedicil proceed from a point to every direction on the same elevation, then an umbel is formed. There are various sorts of umbel.

1st. Simple umbel when the pedicils give out a single branch.

2nd. Compound umbel when more than one.

3rd. An assemblage of umbels is called universal umbel.

4th. The small umbels are umbellules. The part which supports the umbellules is called radii.

Hence we have 8 forms of inflorescence.

1st. Peduncle; 2nd, spike; 3rd, raceme; 4th, amentum or catkin; 5th, locusta; 6th, spadix; 7th, corymb; 8th, umbel.

*Question 6th.* Describe the stamens, what they are, their parts, structure, and their modes of insertion.

*Answer.* Stamens are those organs seated within the corolla: they are the modified leaves, and they constitute what is called the male apparatus of the flowers, in fact they are the male apparatus. It consists of three parts, viz. filament, anther and pollen; filament is that which supports the anthers. If the filament consists of cellular tissue it varies in color, in some it is red, in others blue. Its form is cylindrical. Anther is that part which is seated on the apex of the filament; it consists of cells which contain pollen. When anthers are attached by the base it is called innate, when by their back called adnate, when by a point called sessile: pollen is a pulverulent substance filling the cavity of the anthers, pollen consists of grains which are called granules, pollen is enclosed in three membranes called extine and intine and an intermediate called exintine: when the stamens are inserted into the calyx and corolla they are called perigynous—when inserted into the pistil called epigynous—when inserted under the pistil called hypogynous.

*Question 7th.* The pistil its structure, the parts of which it consists.

*Answer.* The pistil is the female organ in the flower, occupying its centre. It consists of three parts, viz., ovary, style, and stigma. Pistil is formed of vascular tissue surrounded by cellular tissue.

*Question 8th.* Describe the ovary and ovulum, varieties of ovule.

*Answer.* The ovary is a hollow case situated at the base of the pistil, enclosing ovules and containing one or more cavities.

The variety of ovule.

The chalaza is a dilated vascular disk formed by the raphe at the base of the nucleus. When the chalaza is situated at the base and foramen at the opposite extremity, then the ovule is called *orthotropus*. When the foramen instead of being at the opposite extremity is brought almost nearer to it, then the ovule is *camphilotropus*. When the vessels of the ovule instead of penetrating at the hylum, are reflected round half the diameter of the ovule, then the ovule is called *anatropus*. When the chalazal and foramina are transverse then the ovule is called *amphilotropus*. When foraminal opening is parallel then the ovule is *semianatropus*. Hence we have five varieties of ovule, 1st, orthotropus, 2d, camphilotropus, 3d, anatropus, 4th, amphilotropus, 5th, semianatropus.



9th Question.—The meaning of the term didynamous.

Answer. When there are four stamens, two long and two short, then this term is applied. It has two orders according to the Linnæan system in Lindley's Elements of Botany. 1st., Gymnospermia seeds apparently naked; 2nd, order is angiospermia, seeds in *blood* vessels.

10th Question.—The meaning of the term tetradynamous.

Answer. When there are six stamens, four of which are long and two short, then the term tetradynamous is applied. It has two orders. 1st, order Siliquosa with a long pod. 2d order, with a short pod or planet.

11th Question. How the four classes of dicotyledons are distinguished from each other according DeCandolle.

Answer.—The four classes are the following, viz.

1st. Thalamifloræ.—Corolla polypetalous, stamens hypogynous.

2d. Calicifloræ.—Corolla polypetalous, stamens periginous.

3d. Corollifloræ.—Corolla monopetalous stamens inserted into the side of the calyx.

4th. Monochlamidæ.—A calyx only, or corolla none.

12th Question.—If you meet with a tree or shrub with handsome flowers, large and showy corolla polypetalous, stamens united by their filaments into a tube surrounding the pistil, anther celled, to what class and order would plant then belong?

Answer.—The plant would belong to the order Marantaceæ, and to the family Floridæ, and to the class Endogen.

13th Question.—Suppose you meet a plant, the filaments united at the base and anthers two celled, what order would it belong to?

Answer.—Plant would to Zenjiberaceæ and to the same family and class as before.

Question 14th.—Suppose you meet a plant of the order Thalamifloræ, having shining leaves, marked with transparent dots, and the blade articulated to the petiole, to what order the plant would belong?

Answer. The plant would belong to the order Aurantiaceæ.

Question 15th.—What class do the Leguminosæ belong, and what are its principal divisions?

Answer. Leguminosæ belong to the class calicifloræ. Its Characters: Herbacious plants or shrubs, leaves alternate, petiole tumid at the base, stipules 2, flowers showy, calyx inferior, and the segments unequal, and variously combined: corolla, papilionaceous or regularly spreading, stamens definite or indefinite, hypogynous or periginous, ovary superior, fruit legume, seeds destitute of albumen.

#### *Lindley's Elements of Botany.*

It is divided into three sections, A, B and C.

Section A. Flowers papilionaceous or butterfly-shaped, to this belong the genus *alhaga* and *butea frondosa*.

Section B. Cessalpinæ, sepals, petals, regularly spreading stamens periginous; to this belong the genus *cassia senna* and *cassia fistula* and *tamarindus Indica*.

Section C. Mimosæ—petals, sepals valvate, stamens hypogynous, to this belongs the genus *acacia*.

Question 16th. Mention the peculiarities of Compositæ with regard to structure.

Answer. Compositæ. Herbs or shrubs extremely variable in appearance, flowers in heads surrounded by involucre and seated upon a receptacle from which palæ often spring, calyx pappous, corolla regular or irregular, anthers united into a tube, ovary inferior, one-celled with an erect ovule, embryo without albumen. Its calyx is called pappus. When

the pappus consists of hairlike processes proceeding from the ovarium, it is then called pilose. When these hairs are themselves divided then they are called plumose or feathery. When the divisions are broad and membranous, then called *paliaceous*. When reduced to a rim called marginate, the style of this family is marked by hairs which are collectors.

*Question 17th.* Mention the orders of Corollifloræ remarkable for milky juice.

*Answer.* There are three orders remarkable for the milky juice. 1st, Apocynaceæ. 2d, Asclepiadaceæ 3d, Convolvulaceæ.

*Question 18th.* Mention some of the Monochlamidous plants remarkable for milky juice.

*Answer.* There are two orders, viz. 1st, Euphorbiaceæ. 2d, Urticaceæ.

*Question 19th.* Suppose you are to meet with a monochlamydous plant with milky juice, fruit monococcus, and tricoccus fruit what is the plant?

*Answer.* Euphorbiaceæ.

BHOLANAUTH DOSS.

**Appendix E.**

**PRIZES AND CERTIFICATES OF HONOUR.**

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**Anatomy and Physiology.**

*The Government Gold Medal, and First Certificate.*

DINNONATH DOSS.

*The Rustomjee Medal, and Second Certificate.*

MADHUB LOLL SHOME.

*First Silver Medal, and Third Certificate.*

BHOLANATH DOSS.

*Second Silver Medal, and Fourth Certificate.*

OMESH CHUNDER MITTER.

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**CERTIFICATES OF HONOUR.**

5th J. Kearney.

7th Mr. Covington.

6th Nubbogopaul Ghosal.

8th Shib Chunder Bysack.

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**Chemistry.**

*Gold Medal, and First Certificate.*

SREENATH MOOKERJEE (SECOND.)

**CERTIFICATES OF HONOUR.**

2nd Omeschunder Mitter.

5th J. W. Brechman.

3rd Bholanath Doss.

6th H. Hatchell.

4th J. Kearney.

7th E. Katts.

**Botany.***Gold Medal, and First Certificate.*

BHOLANATH DOSS.

## CERTIFICATES OF HONOUR.\*

2nd Dinnonath Doss.	8th C. Raddock.
3rd J. W. Brechman.	9th Mahomed Ján.
4th Nilmadub Mookerjee.	10th Chunder Coomar Bose.
5th Sreenath Mookerjee (Second.)	11th J. Kearney.
6th F. J. Pettingal.	12th Buxiram.
7th Govind Chunder Dutt.	13th Madub Lall Shome.

**Medicine.***Gold Medal, and First Certificate.*

F. J. PETTINGAL.

## CERTIFICATES OF HONOUR.

2nd D. Picachy.	4th Sreenauth Mookerjee (First.)
3rd Nobinkristo Bose.	5th Nilmadub Mookerjee.

*Clinical Prize.*

D. PICACHY.

\* All Students in the English Department, Senior and Junior, contended in this Class.

**Surgery.***Gold Medal, and First Certificate.*

F. J. PETTINGAL.

## CERTIFICATES OF HONOUR.

2nd Sreenath Mookerjee (First.)      3rd Nobinkristo Bose.  
 4th D. Picachy.

*Dresser's Prize.*

NONE AWARDED.

**Midwifery.***Gold Medal, and First Certificate.*

NOBINKRISTO BOSE.

*Goodeve Scholarship, and Second Certificate.*

NOBIN CHUNDER BOSE.

## CERTIFICATES OF HONOUR.

3rd F. J. Pettingal.      4th D. Picachy.  
 5th Fakeer Chund Bose.

**Materia Medica.***Gold Medal, and First Certificate.*

D. PICACHY.

## CERTIFICATES OF HONOUR.

2nd Nobinkristo Bose.      4th F. J. Pettingal.  
 3rd Kally Doss Nundy.      5th Sreenath Mookerjee, (First.)  
 6th Nilmadub Mookerjee.

**Medical Jurisprudence.***Gold Medal, and First Certificate.*

NOBINKRISTO BOSE.

## CERTIFICATES OF HONOUR.

2nd Fred. J. Pettingal.

5th Kally Doss Nundy.

3rd George Hornett.

6th Mr. Covington.

4th D. Picachy.

7th Nubbogopaul Ghosal.

**MILITARY CLASS.****Senior Students.***Gold Medal, and First Certificate.*

SHAIKH ALI MAHOMED.

*Second Prize and Certificate.*

SUNT PERSAUD SINGH.

## CERTIFICATES OF HONOUR.

3rd Shamath Oollah.

5th Mirza Ramzan Ali.

4th Ushruff Ali Khan.

6th Ameer Khan.

**Second Class.***Silver Medal.*

SHAIKH KURREEM BUKSH (THIRD.)

*Prize.*

SHAIKH ELAHEE BUKSH (FIRST.)

**Junior Students.***First Prize.*

MIRZA RUJUB ALI BEG.

*Second Prize.*

DURSUN LALL.

*Medical College,  
April 5, 1847.*FRED. J. MOUAT, M. D.,  
*Secretary.*

Medical Department

General Hospital, Fort Detrick

Washington, D.C.

CLASSIFICATION OF HONORS

- 1st Lt. J. H. ...
- 2nd Lt. J. H. ...
- 3rd Lt. J. H. ...
- 4th Lt. J. H. ...
- 5th Lt. J. H. ...
- 6th Lt. J. H. ...
- 7th Lt. J. H. ...
- 8th Lt. J. H. ...
- 9th Lt. J. H. ...
- 10th Lt. J. H. ...

MILITARY CLASS

General Hospital

General Hospital, Fort Detrick

Washington, D.C.

General Hospital, Fort Detrick

Washington, D.C.

CLASSIFICATION OF HONORS

- 1st Lt. J. H. ...
- 2nd Lt. J. H. ...
- 3rd Lt. J. H. ...
- 4th Lt. J. H. ...
- 5th Lt. J. H. ...
- 6th Lt. J. H. ...
- 7th Lt. J. H. ...
- 8th Lt. J. H. ...
- 9th Lt. J. H. ...
- 10th Lt. J. H. ...

Evening Class

General Hospital, Fort Detrick

Washington, D.C.

General Hospital

Fort Detrick

Washington, D.C.

General Hospital

