Thomas Henry Green, M.D.; Thomas Lauder Brunton, M.D.; Isaac Burney Yeo, M.D.; Arthur Ernest Sansom, M.D.; Horatio Bryan Donkin, M.D.; Thomas Barlow, M.D.; William Ewart, M.D.; David Bridge Lees, M.D.; Julius Dreschfeld, M.D. *Midwifery and Diseases Peculiar to Women*: John Baptiste Potter, M.D.; Charles James Cullingworth, M.D.; Peter Horrocks, M.D.; John Phillips, M.D.; Robert Boxall, M.D. *Surgical Anatomy and Principles and Practice of Surgery*: John Langton, F.R.C.S.; John Neville Colley Davies-Colley, F.R.C.S. *Public Health—Part I*: Thomas Stevenson, M.D. *Part II*: William Pasteur, M.D. *Examiners for the Murchison Scholarship*: Thomas Whipham, M.D.; William Henry Allchin, M.D.

Reports from the representative in the General Medical Council and from the Committee of Management were received and adopted.

Quarterly reports from the Laboratories Committee, the Finance Committee, and the Examiners for the Licence were received and adopted.

A special report was received from the Laboratories Committee recommending that the two Royal Colleges should undertake through their laboratories the official testing of antitoxin, and should authorise the director to issue official certificates in respect of such testing.

Dr. PAVY moved the adoption of the report commenting on the necessity for charging some fee.

Dr. PYE-SMITH pointed out that this was contemplated in the report.

Dr. KANTHACK was doubtful if the College ought to undertake this work and at the same time prepare antitoxin in the laboratories.

Dr. SIDNEY MARTIN overcame this objection by arguing that the only way to become competent to standardise was to have large experience in making the test toxins.

Dr. POORE said it was much better that the standardisation should be done by a scientific body than through a Government office.

The report was then adopted.

The annual reports of the Library Committee and of the Curators of the Museum were received and adopted, and the thanks of the College were voted to the donors of books during the past quarter.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council meeting was held on July 29th, Sir WILLIAM MAC CORMAC, Bart., President, in the chair.

The minutes of the preceding meeting were read and confirmed.

Mr. Victor Gustave Plarr, B.A.Oxon., was appointed Librarian of the College. A gratuity of £25 was presented to Mr. C. R. Hewitt, assistant in the library, in recognition of his services in the library since the death of Mr. James Bailey.

It was decided to close the museum and library from August 28th (instead of as usual from August 31st) to October 1st, in order to facilitate the arrangements for painting and redecorating the halls and staircase.

The Finance Committee reported that the balance on the income and expenditure account amounted to £2,018, and observed that the fact that so large a margin has been left, notwithstanding the heavy expenditure (£753) on reconstructing and redecorating the lecture theatre, must be regarded as an indication of the sound financial position of the College.

Mr. Davies-Colley was re-elected a member of the Court of Examiners, and Mr. Cuthbert Golding-Bird elected a member.

Sir William Mac Cormac, Bart., was elected a member of the Committee of Management in the vacancy occasioned by the resignation of Mr. Christopher Heath.

A letter was read from Mr. G. F. Oldham, communicating the following resolution adopted at a meeting of members of the medical profession in Norwich, held on July 17th, namely:

That this meeting, while acknowledging with thanks the reply of the Royal College of Surgeons to the Norwich memorial, desire to express the opinion that steps should be taken so to amend Section xvi. of the Bye-laws as to enable the Council to prevent its Fellows, Members or

Licentiate accepting positions derogatory to the honour and best interests of the profession.

Mr. Tweedy moved:

That the printed Minutes of the Council be considered the property of the College, and that regulations be framed with a view to preventing unauthorised persons from obtaining them.

A letter was received from Lord Salisbury, stating that an international conference on leprosy would be held at Berlin, and inviting those interested in the matter to attend.

On the recommendation of the Committee of Management, the following resolutions were adopted, the Royal College of Physicians concurring:

1. That the following institutions be added to the list of recognised places of instruction in Chemistry, Physics, Practical Chemistry, and Biology—(a) Battersea Polytechnic Institute; (b) Cheltenham College (without Biology); (c) Middlesbrough High School (without Biology); (d) Northern Polytechnic Institute.

2. That the following hospitals be added to the list of Fever Hospitals recognised by the Board—(a) Bristol Corporation Fever Hospital; (b) Manchester Corporation Fever Hospital.

3. That the following asylums be added to the list of Lunatic Asylums recognised by the Board—(a) City and County Asylum, Fishponds, Bristol; (b) Manchester Royal Asylum, Cheadle.

4. That the Victoria Hospital for Children, Chelsea, be recognised as a place of study during the fifth year of the curriculum.

5. That the Royal Westminster Ophthalmic Hospital be added to the list of Ophthalmic Hospitals recognised by the Board.

SHIP'S WATER.

By WILLIAM COLLINGRIDGE, B.A.Cantab., M.D.,

Medical Officer of Health for the Port of London.

THE influence of a pure water supply on the public health is nowhere so potent as on board ship. Not only is the whole ship's company for the time being entirely dependent upon one supply, but the fact that the vessel passes from port to port further increases the chance of transmission of any disease due to an impure drinking water. Three main points require consideration: (1) source of supply; (2) storage; (3) filtration.

1. In many ports of the world the supply is undoubtedly good, while in many others it is often indifferent, if not absolutely polluted with the poison of specific disease. Often, again, a good supply may be spoiled by the means of transference from shore to ship by dirty water barges or casks. Whenever possible, the supply should be taken direct from the mains by flexible pipes. The greater part of the shipping in the docks of London is supplied in this way, and thus the risk of pollution is reduced to a minimum. In former times the whole of the water required for use on board had to be taken in at the port of departure, but at the present day nearly every steamer engaged in long voyages and many sailing ships are fitted with condensers, so that a smaller storage is necessary. With good condensers and care in aeration water is rendered perfectly palatable; and even where the taste and appearance are not tempting, one can be certain as to the absence of specific contamination. It would be well, therefore, to encourage the perfecting of the condensing apparatus rather than that of appliances for filtration and storage. The practice, however, varies very much. The Peninsular and Oriental Company carry from 150 to 200 tons on their larger boats, and about 100 tons on their cargo vessels. The Shaw, Savill, and Albion Company, on their cargo boats, to New Zealand carry about 60 tons, this amount being sufficient to last for the voyage, condensing being scarcely ever resorted to. Their passenger vessels carry a much larger quantity. Those of the Gothic have tanks of the capacity of 300 tons.

2. The storage requires very careful attention. Fortunately the stability of the ship requires that the tanks should be carried low down, that is in the best position, inasmuch as they are less exposed to the influence of temperature and the risk of pollution. All tanks should be built of iron coated inside with cement wash, which should be renewed every two or three months. The manholes should be sufficiently large for a man to enter freely for the purpose of cleansing, etc., and should be placed in such a position that when uncovered daylight can find its way to the bottom of the tank. For thorough cleansing artificial light is not to be relied

upon. To minimise risk of accidents it is well to have two manholes to each tank. From the main tanks the water can be pumped up into small service tanks on deck whence it can flow by gravitation to those parts of the vessel where it may be required.

3. Filtration so far as purification of water is concerned is practically non-existent on board ship. Ship-owners are anxious to do all that they can, and spend in some cases considerable sums upon filters, which are afterwards neglected and ill-treated to such an extent that they soon become worse than useless. As a rule a filter is placed on board at the beginning of a voyage, and as long as water flows freely through it satisfaction is given. Only recently inquiry as to how a certain filter worked brought the answer, "It did not work at all well at first, but I took it on deck and shook out a lot of black stuff, and now the water runs through as quickly as it is poured in." The "black stuff" in question was the filtering medium. On some of the large liners using sand and charcoal filters it has been found that the filtering medium is rarely changed more than once a year. On another line block charcoal filters were sent to the makers for cleaning, etc., twice in three years. Altogether it may be said that the use of filters is most unsatisfactory, and that in the majority of cases a good water supply would be fouled by their employment. It has recently been shown that the only thoroughly reliable and efficient type of filter is that suggested by Pasteur, inasmuch as this is the only one which will prevent for a certain time the passage of the microbes of those diseases usually conveyed by water. These are associated in batteries so as to avoid the difficulty of the slow passage of water through the porcelain. With a fairly good supply these will last for an ordinary voyage, and arrangements can easily be made with the makers to provide new "candles" on the arrival of the vessel. Special patterns are constructed for use on board, and doubtless these would be soon still farther improved if the demand became general. Objection would probably be raised on the score of expense; but, as a matter of fact, filters of this type can be supplied at practically the same price as the best patterns of other makers. At any rate, efficient filtration is worth paying for, and inefficient filtration is worse than useless. As a practical matter the users of filters on board ship cannot be trusted to cleanse them, and the only reliable system is one of contract with the makers to keep them in order by periodical renewal.

Briefly, more care is required in taking in water abroad—from certain ports it should be always looked upon with suspicion—in case of doubt it should be if possible distilled. Wherever reliance is placed upon filtration, the apparatus employed should be one which can be shown to be theoretically efficient and practically workable.

DEATHS UNDER CHLOROFORM.

THE SAFE ADMINISTRATION OF ANÆSTHETICS.

MESSRS. KROHNE' AND SESEMANN write: Your correspondent would serve a useful purpose towards "safe administration of anæsthetics" if he would kindly explain in your widely read JOURNAL the details of the theory, and give the facts upon which the conclusion is founded, that "chloroform is dangerous between the ages of six months and sixty years," from which he appears to draw the lesson that "chloroform should rarely be employed as an anæsthetic."

Dr. O'Neill's report of 600 cases is reassuring, inasmuch as they undoubtedly prove that no ill-effect, much less danger to life, need be apprehended from the inhalation of chloroform or methylene, so long as their administration, and therefore their action and effects, are limited to a fraction of a minim to the quantity absolutely necessary to be absorbed by the blood to cause in any patient, of whatever age and condition, perfect insensibility to any ordinary surgical operation. Snow's estimate that 18 minims of chloroform gradually absorbed by the blood suffice to cause complete insensibility in an average adult may serve for estimating approximately the quantity of chloroform required for causing like effects in patients at different ages and body weight.

The general rule with usual remedies is, that the children of one year and under should have one-twelfth of the adult dose. The adult is taken at 25 years, half adult doses for 14

years, and two-thirds at 20 years. Dr. Barton further adds that the dose given for 1 year should be divided by twelve for each month. The usual remedies are, however, administered in one or more doses at varying intervals during the twenty-four hours, whereas anæsthetics are administered by continuous inhalation of from two to more minutes' duration, by which the whole dose required to cause insensibility is divided in as many separate doses as there are inspirations made by the patient.

Making due allowance for the different susceptibility to chloroform in different individuals, an approximately accurate estimate of the dosage required for causing like effects in patients at their several ages and body weight may be made.

According to Snow, the following quantities of chloroform are required to be uniformly diffused in the blood to cause his five degrees of narcotism in adults:

Adults weighing about	Quantity of Chloroform.	Length of time in which it should be administered.	Degrees of Narcotism.	Effects.
Lbs.	Minims.	Minutes.	—	—
150	12	3 to 4	2nd	Loss of sensibility without loss of motion and consciousness.
150	18	4 to 5	3rd	Loss of sensibility, motion, and consciousness.
150	24	5 to 6	4th	Deepest degree of narcotism ever required for thorough relaxation of muscles, indicated by stertor.
150	36	In any length of time.	—	Arrested respiration, and failure of the heart's action soon after.

And according to the estimate of the usual remedies above indicated:

Age.	Height.	Weight.	Chloroform.	Length of time for inducing Snow's third degree of narcotism in which operations are usually commenced.
Years.	Inches.	Lbs.	Minims.	Minutes.
30	66.3	145.6	18.2	From 4 to 5, and occasionally more.
25	66.3	145.6	18.2	" "
22	66.2	138.3	17.3	" "
20	65.8	130.9	16.3	" "
18	65.2	118.5	15.5	" "
16	63.0	99.8	12.4	" "
14	58.6	81.6	10.2	" "
12	54.5	63.8	8.0	From 3 to 4
10	50.4	55.4	6.9	" "
8	45.7	47.5	5.9	" "
5	38.8	34.9	3.4	" "
3	34.2	27.5	3.4	" "
2	31.0	24.2	3.0	From 2 to 3
1	27.5	19.8	2.5	" "

The dosage above indicated may appear much too small for causing insensibility, but facts prove them to be maximum doses. Two interesting and instructive results obtained with chloroform by Dr. Beck, of Berne, Switzerland, in conjunction with a young colleague, administered by means of the regulating inhaler, recorded in the June number, 1896, of the *Aertzliche Polytechnik*, support this statement. Dr. Beck writes: "I myself, 63, my colleague 24 years of age, both of quite healthy constitution, no alcoholics. We both took, purposely, before the administration, our usual midday dinner. I (Dr. Beck) with my accustomed decilitre of wine; my colleague only took a glass of water. We narcotised each other to complete loss of corneal reflexes. The result was as follows: We both together took twenty minutes in using