MEDICAL SOCIETY OF VICTORIA.

ORDINARY MONTHLY MEETING.

WEDNESDAY, FEBRUARY 6, 1878.

(Hall of the Society.)

Present: Dr. Neild, Mr. Gray, Dr. Bird, Dr. Hunter, Dr. M. Smith, Dr. Williams, Dr. Colquhoun, Dr. Ryan, Dr. Singleton, Dr. Jamieson, Dr. McMillan, Dr. Bowen, Mr. W. Barker, Dr. W. Molloy.

The Vice-President, Mr. Gray, in the chair.

NEW MEMBERS.

The following gentlemen were elected ordinary members of the Society:—Mr. A. F. Noyes, of Deniliquin; Mr. D. B. W. Wilkie, of Dimboola; Dr. A. C. Hutchings, of Sandhurst; Mr. R. A. Stirling, of Richmond; Mr. F. Barton, of Richmond.

EXHIBIT.

Dr. Ryan exhibited an ether inhaler. It consisted of leather, lined with flannel, and having a cap to prevent evaporation.

Dr. Williams preferred to give ether in the warm vaporised form, as he certainly regarded cold ether as not unattended with danger. He thus thought that Hawksley's apparatus possessed an advantage in preparing the ether in this way. It might be cumbersome, but this fault was balanced by the advantages he had spoken of.

Dr. Ryan, in reply, said he had not found any of the disadvantages referred to by Dr. Williams in giving cold ether. He had observed occasionally a little excoriation of the skin, but this was easily preventible.
In the course of a conversation on the respective merits of ether and chloroform, Dr. Williams said that at the Melbourne Hospital he had timed a number of cases with reference to the length of time it required to produce anaesthesia with ether. Out of forty cases, two required seven minutes, but the average was from two to three minutes. In none of these cases had it been necessary to conclude with chloroform. It was of importance, to be sure, that the ether was of pure quality.

The following paper was then read:

ON THE INFLUENCE OF THE AUSTRALASIAN CLIMATES ON IMPORTED PHTHISIS.

BY S. D. BIRD, M.D., &c.

The object of this paper is, first, to reiterate my own opinions so often stated on this subject, and to assert that recent experiences have only confirmed them; and next, to elicit the opinions of the members of the Medical Society as representatives of the profession in Victoria. We have already seen the figures of the question, and how completely they appear to bear out the statement made by me in the year 1863, in my work on Australasian Climates in Consumption. But there is a large branch of the subject which figures do not, and cannot, touch at all with any exactitude, and concerning which, to arrive at any definite conclusion, we have only our personal experiences to rely upon. These are—First. Cases of imported phthisis which come here, get well, and remain well, residing here permanently. Second. Cases which, after a residence here improve, return to Europe, and are lost sight of. Third. Those who get worse in the ordinary course of phthisis, unaffected by climate, and leave for Europe or elsewhere, having got no benefit from the change. Whether such would have got worse equally or more or less quickly if they had not come here it is quite impossible to say with certainty. It is obvious that not one of these groups, which collectively form a very large proportion of phthisical cases, as we see them in ordinary practice in this colony, falls under any possibly reliable method of analysis by figures, unless every medical man in Victoria has kept accurate notes of every case of imported phthisis which he has ever seen; and has followed out the history of every such case to a given date, to whatever part of the world the patient may have gone after leaving Australia. This is of course absurd. We may trace a few, but the majority are lost sight of altogether, and therefore only a partial numerical computation can be made, which, for reliability, is worse than none. In other words, the only cases of which the numerical method is cognizant, are those which die here and appear on the Registrar-General's returns, which we all know to be but a fraction difficult to estimate of the phthisical patients who have come here from Europe, America, or India, in all stages of the disease.

But before considering further the details of these groups, it will
be right and convenient to delay a little over the voyage hither from England. A great deal has been written lately about sea voyages for chronic disease, but physicians in England seem, as a rule, to have but the vaguest ideas of the requirements of a patient on board ship, or of the choice of a line of ships most suitable. For example, not long since a phthisical young man was put on board a Scotch liner carrying no other passengers, by a wealthy and anxious father, at the advice of his London physician. This poor boy, accustomed to every luxury in his home, had to feed for three weary months on salt junk, biscuit, and tasteless preserved meat and vegetables, which the skipper and sailors no doubt found very wholesome food, but on which he simply starved, besides sleeping in a leaky bunk, and not having a creature on board to talk to having ideas in common. He died three weeks after landing. Money was no object, for the bereaved and almost heart-broken father has erected a costly monument to his memory. It was sheer ignorance on the part of his advisers; they never paused to inquire whether or not everything was to be had at sea as on shore, for the paying for it. The choice of cabin, &c., also is a question of detail, but one which those who vaguely order a "long sea voyage" seldom enter into.

Patients constantly tell the same story on arriving here, viz., "I got much better, gained flesh, and lost my cough all the first part of the voyage, and was going on splendidly till we got to the cold weather in high latitudes after passing the Cape, and since then I have been falling off." Surely something might be done about this? Invalids form a very large portion of the passenger trade now, and it has been proved that sailing vessels may make almost, if not quite, as quick runs between the Cape and Australia, in about 37° or 38° S. latitude, where the weather is comparatively mild and moderate, as in higher latitudes, where it is invariably cold, wet, and boisterous. A good example of this occurred a few years ago to some relatives of my own. The ship in which they were, kept company with another vessel of the same size and build all the way from London to the longitude of the Cape or thereabouts, proving that their sailing powers were about equal. But from this point the two captain's views as to the best parallel for "running down the easting" differed; the one went south on the great circle system to about 50°, only to get violent gales, with loss of bulwarks, boats, and sails, and arrived in a battered condition at Port Phillip Heads, disgusted to find that his rival, who had quietly jogged along in calm seas with moderate breezes, at about the latitude where they had parted company, had arrived a clear week before him.

It might be quite possible to charter an "invalid ship," some slow steady old frigate built tub, with roomy cabins and a really experienced cook, as well as surgeon, the captain having orders to keep as much as possible in mild latitudes and fair weather, to carry easy sail, and consult comfort rather than speed. I do not believe that this would make more than a fortnight's difference in
the length of the voyage on an average, and would be of immeasurable benefit to the invalids on board. Special comforts, too, such as beef-tea, arrowroot, &c., between meals, are seldom to be had on ordinary liners, the overworked cooks and stewards seldom caring to prepare anything of the kind for a sick person, unless specially "tipped," and then only as a favour. In one large vessel that arrived not long ago, with many invalids on board, the bread eaten was sour the whole voyage, and there was hardly a drop of drinkable wine or other stimulant to be had.

Another thing that wants reform is the present system of crowding the meals together within a few hours; for example, breakfast at 9 a.m., lunch at noon, dinner at 3.30 (i.e., the whole eating for the twenty-four hours compressed into six and a half hours. This would inconvenience an ostrich, and is quite enough of itself to cause dyspepsia and torpor of the liver and bowels. I believe, from inquiry made, that all these evils might be remedied, and the voyage made a really sanitary one, were invalids content to pay about one-fifth extra passage money, on which terms it would be well worth the while of shipowners to lay on a special invalid ship every few weeks, with extra stewards, supplies, and accommodation, and to be content to let the voyage endure a little longer than usual, for the sake of the comfort and well-being of the passengers. A pulmonary invalid should generally choose a cabin on the port side, on the outward voyage, as by this means he gets the benefit of the cool N.E. and S.E. trades while in the tropics, which ventilate and lower the temperature of his cabin, while in the same way he avoids the cold southerly and S.W. winds after passing the Cape.

However, in spite of the disadvantages of some present arrangements, a large majority of phthisical cases not too far advanced gain flesh and lose symptoms on the voyage; and I have noticed that those who do not, commence to mend shortly after landing, particularly if the provisions on board have not been of the best.

In considering the effects of voyages and change of climate on phthisis, the mistake is constantly made of omitting to take into consideration what would have been the probable result of the case had the patient not left his home at all, but depended on dietetic and drug treatment, &c. Laymen are especially apt to forget that this is a disease which, even with our improved knowledge of its pathology, and vastly improved consequent medication and hygiene, is still one of the most destructive to human life, and because Brown, Jones, or Robinson comes here and dies of it, they jump to the conclusion that the climate is "no good" for consumption. But this is not the question. No one ever pretended—certainly, I never did—that this or any other climate was a panacea; or that there ever was, or ever will be, a climate where phthisis will not develop under suitable conditions. So long as the predisposing causes, whether hereditary or mental, moral or physical, exist or coexist, the exciting causes will never be wanting, and we shall have phthisis
even if we could manufacture a climate to order, perfect in all respects. The real question is this—knowing as we do that the morbid process, both general and local, is sometimes arrested, either for a time or permanently—in plain English, that consumptives do sometimes get well—do we see this happy event more commonly here than we used to do in England, especially in patients coming from England; and if so, are we justified in attributing this either in whole or in part to change of climate for the better? I can only answer this by repeating what I wrote many years ago in this journal, with the additional experience of the interval until now, viz., that "I have seen more cases of arrested phthisis in this country than I ever heard of in Europe." I may claim to speak with a certain authority on this subject, for with only the break of about eighteen months during the Crimean war, I have lived in a regular atmosphere of phthisis for the last twenty-five years, and therefore have necessarily been brought in contact with far more, and a far greater variety of cases than most practitioners; and I repeat this statement deliberately, and from conviction, based on the experience and observation of nearly seventeen years' residence in Melbourne. There is always an element of possible fallacy in figures, a familiar example of which we have seen lately in the very wide range of value attributed to the Hobson's Bay Railway shares by competent actuaries; and to find how readily statistics may be "cooked" to suit the political palate of a party, one has only to wade, if possible, through the budgets of two successive Treasurers to find oneself in great doubt as to whether two and two make four or five. But "facts are stubborn chieifs that will na ding," and it is a fact as notorious and familiar to all of us beyond the new chums' stage, as manhood suffrage or Mount Macedon, that you cannot "do the block" any fine afternoon without meeting, every few yards, some one whose chest history is that of arrested tubercle,—some old colonist who will confess, if put to it, that he "came out for his health," having had haemoptysis, wasting, &c., and who now thinks it very hard that the life assurance companies load or reject his risk because his brothers and sisters lie in the family vault, having died in the "old home" of the old complaint. It is obvious that one cannot tabulate and publish all these. The numerical method cannot grasp them; but they are facts for all that, and what is more, these people maliciously continue to live and enjoy life, as if to spite the fatal figures and periodical lamentation books of our trans-riverine Jeremiah.

A good example of this sort of case called on me the other day. He came out here phthisical many years ago, and made his fortune in trade, enjoying very good health. On retiring from business he made two attempts to live in England, and each time had to keep his room with bronchitis for three months at a time. Now, the Bank of England would not tempt him to try another English winter. Such cases compose my first group, and any unprejudiced colonist of some years standing knows how common they are in our population.
The second group, namely, those who, after a residence here improve, leave the colony and are lost sight of, form a considerable proportion of the cases of phthisis which we see here, but are incapable of tabulation. I have known many who, with restored health, have been able to reside permanently in England; but it is only fair to suppose that many others relapse and die in the usual course of the disease.

Lastly, the cases who get no benefit and leave, almost certainly to die elsewhere, in a few months. These surely would have been no better off in England, or any of the numerous health resorts of Europe, and have at least had a chance.

The conclusion one naturally comes to is that early cases have by far the best prospects, and the majority of such either get well, under favourable conditions, or live for some years in comparative comfort. I can give many instances of persons following sedentary occupations in large towns in Great Britain, such as bank-clerks, accountants, &c., who were obliged to throw up their appointments and come out here in consequence of pulmonary trouble, getting worse with every winter, who are now in Melbourne in identically the same employment, and enjoying good health.

As regards advanced cases, are physicians in Europe justified in putting such on board ship and sending them here? They are under favourable conditions, and when the patient himself has a very strong desire for the voyage. A good deal depends on the patient's means, and ability to move from place to place according to season. Under such conditions I have known advanced cases live on and have a fair enjoyment of life, which they probably would not have had elsewhere. A winter sanatorium in some suitable situation, on the great plain due north of this, in the saltbush district, now readily accessible by the Moama and Deniliquin railway, is a great desideratum. Any one who has visited both, knows how far superior its winter climate is to that of Upper Egypt, to which it is often likened.

In conclusion, I must reiterate that no one is better aware of the special faults of this climate than I am; but that its general average in the year is more suitable to consumptive invalids than any in the northern hemisphere, I am absolutely convinced.

Dr. Singleton's experience of phthisis had been among the lower classes, but he could corroborate Dr. Bird's conclusions. In the Collingwood Dispensary he had treated upwards of 3000 cases, and he was quite sure that they had all lived three times as long as they would have lived in the old country. He had known cases get well after discharging chalky tubercles, and those who went up the country and lived a rough rural life quite recovered. His observations had also enabled him to conclude that in young children born here the disease was far less frequent.

Dr. Hunter had himself come to this colony on account of phthisical symptoms. In 1876 he suffered badly from hæmoptysis,
and was in bed six weeks, and for two months afterwards he could not get up before noon. All that time it seemed to him that there was little chance of long life for him. Having read about Australia, he resolved to come, and he had good reason to be gratified that he had done so. He could thoroughly corroborate Dr. Bird’s remarks about the discomforts of the voyage, and yet of eleven others who came out in the same ship suffering from phthisis only one had died, and he lasted six months. This climate might not always cure phthisis, but it unquestionably lengthened the lives of those suffering from it. The sleeping accommodation on board ship was, for the most part, bad. The breathing space was too limited, and the ventilation was execrable. He regarded the notion of an invalid ship as a good one. He was quite sure that, with reasonable care, any phthisical patient might prolong his life very considerably by coming to this country.

Dr. McMillan, speaking of the Horn route, could not speak too strongly against that direction of travel. He had done it twice, and had suffered much therein. The time was dreary; the nights were long; the days were short and gloomy; the cold was unendurable. Any invalid would inevitably have sunk under such sufferings.

Dr. M. Smith had come out in an invalid ship. The provisions were all good and properly given out. All the passengers improved and increased in weight.

Dr. Williams thought Dr. Bird’s paper was deficient in evidence. He regretted the phthisis committee had not been empowered to go on, so as to supply the kind of evidence required. He thought we should have more in the way of analysis of cases, and not merely expressions of opinion. The people at home did not care for opinion, they wanted facts. He had no doubt this colony would become the sanatorium for India, but we should give good reason for its being so.

Dr. Ryan, who had been seven times through the straits of Magellan, protested against the high latitudes to which captains of ships were in the habit of going. In the matter of hæmoptysis he did not think that haemorrhage from the lungs was so dangerous a symptom as in Europe.

Dr. Jamieson thought the conclusion must be obvious, that if this climate was unfavourable for the production of phthisis, it must also be unfavourable for the provocation of intercurrent attacks of the disease.

Dr. Colquhoun believed that carelessness in living supplied much, if not most, of the reason why phthisical immigrants retrograded. They grew too confident, and neglected the most ordinary precautions.

After some conversation as to the desirability of the committee going on with their labours,

Dr. Bird replied. He regarded it as impossible to bring up reports of cases. He did not think figures could decide the matter.
For example, eight or nine phthisical patients, just arrived, would come once to him, and perhaps they would come no more. In fact, he did not think he could trace more than 25 per cent. of all who came. It was, therefore, impossible to complete any sort of tabulation of cases. Speaking of hemoptysis, there was unquestionably more here than in the old country, but even when excessive, it mostly terminated favourably.

It was then proposed by the hon. secretary that the phthisis committee continue their labours. As there was no seconder, the committee was understood to have ceased to be.

---

**Australian Medical Journal.**

**FEBRUARY, 1878.**

**UNQUALIFIED PRACTICE.**

On the 5th of December last the justices at Emerald Hill, under the chairmanship of Mr. Mollison, P.M., convicted Vincent Mohabeer of unlawfully pretending to be a medical man within the meaning of the Medical Act of this colony. The defendant appealed to the Court of General Sessions, and the case came on for consideration on February 21st. The chairman, Judge Cope, quashed the conviction on the ground that, although Mohabeer had received fees, and had to all intents and purposes practised as a medical man, he had not stated that he was registered under the Medical Practitioners Act of Victoria. There was no endeavour to show that the defendant had not practised, but as he had not pretended to be any one of the several kinds of practitioners specified in the Act, he had, according to this judicial authority, committed no offence. The judgment delivered was, in substance, as follows:—

"This case was tried on the 5th of December last. An appeal from the decision of justices convicting the appellant, not being registered under Part I of the Medical Practitioners Statute, that he did unlawfully pretend to be a doctor within the meaning of the said statute. It appeared that on the door-plate of the appellant there was painted his name and addition as follows 'Dr. Vincent Mohabeer, of British India, Medical Adviser to the Rajahs and Nabobs.' Several witnesses were called, who proved that the appellant had given advice and medicine, and had received fees for such services; but to all but one of these witnesses he said that he
was not registered according to the statute, and could not practise as a legally qualified practitioner; and to the one witness alluded to he said that he was a doctor in British India, but did not claim to be a doctor of this colony. It is somewhat curious that the statute does not make it an offence to practise as a doctor without being duly licensed; but it is made a very serious offence to pretend to be a doctor. There was no evidence whether the appellant was or was not a doctor of British India, and the offence he is convicted of is pretending to be a doctor within the meaning of the Medical Practitioners Statute, that is, pretending to be a legally qualified medical practitioner; and that is the only offence provided by the statute. If the statute be construed strictly, it would apply to every person who had acquired the degree of doctor at any recognised university. The degree is one that is recognised by law, and unless the appellant used it with the intention of leading the public to suppose that he was a legally qualified medical practitioner, I do not think he committed the offence of which he is convicted. I think the evidence does not support that view. There is a case lately decided in England precisely similar to this—Carpenter v. Hamilton, 37 L.T., N.S., 157. The conviction, therefore, will be quashed.

It appears then that, in effect, the Medical Act of this colony is not of the slightest value, so far as the suppression of unlicensed practice is concerned. Any person may practise to any extent he chooses, so long as he does not call himself Doctor, Surgeon, &c. No doubt this has been all along the opinion of the profession, but not until now have we had it formally promulgated from the bench. An unlicensed practitioner, it is true, cannot hold an appointment, nor sign a certificate, and in case of an inquest upon any one dying under his care, he may be examined by a jury. But these disadvantages are slight, and of little moment to a man whose sole object is to make money by imposing upon the credulity of the ignorant. It is certainly anything but encouraging to the large number of students who are now attending the lectures in the Medical School of the University, that the time and money they are spending, gives them no substantial advantage over any charlatan who chooses to assume the vocation of medicine. It is no use calling the attention of the Legislature to the anomalous condition of the law, and the consequent injustice experienced. During the last twelve years various Governments in this colony have been communicated with by the Medical Society, but all to no purpose. Scores of the most useless enactments have been added to the long list of unnecessary statutes, but no endeavour has been made to protect the public against the rapacious quacks who swarm in all directions. Taking a view altogether apart from the
interests of the profession—and something is surely due to them on this score—the public ought surely to receive some consideration. Practically, however, they are left to the mercy of these vultures, and now that it has been shown they can pursue their nefarious calling without hindrance, it is certain that they will do so with far less reticence than hitherto. In a community calling itself intelligent, and having some regard for human life, this indifference to the common safety is at least curious. Possibly the very absurdity of the neglect will help to work its cure, but up to this present there seems no likelihood that it will.

---

THE ALFRED HOSPITAL.

The annual meeting of subscribers to the Alfred Hospital was held on January 25th, at the Athenæum, Collins-street. The secretary read the annual report, of which the following is an abstract:

During the year the number of patients receiving medical care was as follows:—In-patients, 976; out-patients, 1988; casualties, 2585; total, 5549. In detail, 1876, 31st December:—Remained in Alfred Hospital, 80; admitted, 896; total, 976; discharged, cured or relieved, 779; died, 117; remaining, 31st December, 1877, 80; total, 976. Out-patients, 31st December, 1876—Remained on books, 114; entered, 1874; total, 1988; discharged, cured or relieved, 1077; 31st December, remaining, 246; total, 1988. There had been an increase in the number of deaths during the year, in consequence partly of a serious epidemic of typhoid fever, and partly to the frequency with which cases of incurable disease were brought to the hospital. The overdraft on maintenance account had been reduced from £758 7s. 11d. to £195 5s. 4d., and the latter amount was covered by the sum due to the fund from the Government grant. The building fund showed a credit of £2388 11s. 7d. The subscriptions and the claims had exceeded those of previous years. A sum of £851 15s. 5d. had been received from the Hospital Sunday Fund, also a bequest of £140 from the executors of the late Mr. Wm. James, of Melbourne, and £85 10s. from the contractors for the middle section of the Gippsland Railway, on behalf of their workmen. During the year the subject of a paying ward had engaged the attention of the managers, and on 31st August a sub-committee was appointed to consider the whole question. A full report, which was brought up, and circulated, was unanimously adopted by the board. It was subsequently resolved that the present was not a very opportune time to ask the public to subscribe the necessary funds for building. The thanks of the
Typhoid Fever.

In the Argus of January 12 is the following on the subject of Typhoid Fever:—"At a late meeting the board determined—and we think very rightly—to make another inquiry into the causation of typhoid or enteric fever. The present year already threatens to be the worst we have seen, the deaths from typhoid fever in December far surpassing any of late years. Every one must agree with the board that 'the question is one of vital interest to the health and lives of the whole community.' But we much fear that the board intends by this new inquiry to compound for sins of drainage so close to their own door that he who runs may smell, by diverting public attention to other and more remote causes. Sometime ago we directed attention to the remarkable decrease in the deaths from phthisis (or consumption) resulting from the thorough drainage of some twenty towns at home. The same inquiry (fully detailed in the ninth report of the medical officer to the Privy Council) shows also a marked decrease in the typhoid death-rate. In Bristol, a town of 160,714 inhabitants, the deaths fell off one-third; and in Merthyr, with 52,978, two thirds; and, taken all in all, among a town population of over half a million there was a decreased fever death-rate of about 50 per cent. Surely, in the light of such facts, it would be our best wisdom to attack the known causes of typhoid fever before hunting out new ones. We can judge of the future conduct of the board only by its labours in the past; and seeing it neglect such an evident cause of this annual epidemic, what hope can we have from any new inquiry? We very much doubt if any other preventable cause can be discovered at all equal in deadliness to that of imperfect drainage. Melbourne, in spite of its
healthy climate and other advantages, kills more by typhoid fever than many large towns at home. The figures given in Mr. Hayter's Year-book for England and Wales, include deaths from typhus fever as well as typhoid (or enteric as it should be called). But typhus fever has quite a different causation, being eminently contagious and due almost entirely to foul air from the over-crowding of many breathers in a small space; whereas typhoid fever is directly proportional to the extent of excremental pollution of a locality, be it of the air, the water, or the food. Fortunately, neither our climate nor our social habits favour typhus fever, which at home in our large towns is fully twice as common as the other. Hence in reality we have nearly twice as much typhoid or enteric fever as at home. During the last three years 1,300 have fallen victims to this disease in Victoria, 576 of whom died in Melbourne and suburbs. This is at the rate of 75.2 per 100,000 of the population, whilst for the rest of Victoria the rate was 41.5. Melbourne thus proved 80 per cent. worse, whereas at home, town and country differ by only 12 per cent—a difference so small because the better drainage of the towns in general counterbalances their other defects. Thus in Scotland, during the six years 1865-70, the rate in the towns was 59, in the rural districts 53. Some towns even surpass the rural districts; Glasgow, with 550,000 inhabitants, having had a typhoid death-rate of only 37.3 per 100,000 during the last eleven years. Melbourne, in truth, is no better drained than most of our petty home villages, and in consequence it kills its inhabitants by diseases special to both town and country."

EXPERIMENTS ON THE COMPARATIVE POWER OF SOME DISINFECTANTS.

By James Jamieson, M.D. A paper read before the Royal Society of Victoria on October 11, 1877.

The experiments which this paper records, although they may be regarded as of a progress character, and not absolutely conclusive in some of their results, are yet so practically important in their relation to the long series of investigations which constitute a large bulk of the chemico-physiological researches of the present time, that they commend themselves strongly to the attention of all hygeists. For it seems that as a profession two principal objects have claimed a large share of our consideration for the last quarter of a century, namely, the elucidation of disease-essence, and the means of neutralizing its potency. To the public mind the term disinfectant possesses no sort of mystery or doubt. Non-medical people use what they are told are disinfectants with an unwavering confidence, and it need hardly be said that some of these that are so used, do little else than demonstrate the strong faith of the
average mind, which does not reason. Any information, therefore, which may help us to a more definite knowledge of these agents, so as to enable us to give better help to our patients, must of need be worth the having, and this paper is just of this kind.

Dr. Jamieson says:

"It would be out of place for me to enter at any length on the general question of the nature of those remarkable processes included under the terms putrefaction and fermentation; but it is necessary to state the opinion I hold on the subject, which is that now generally accepted by men of science. It may be said, then, that putrefaction, fermentation, and other allied processes are in their essential nature chemical changes brought about in organic matters by the functional activity of minute vegetable organisms; these changes being of a destructive character, consisting in the reduction of complex substances into simpler ones. Certain phenomena which specially obtrude themselves on our notice, such as the formation of disagreeably smelling matters in putrefaction, and the copious evolution of gas in ordinary alcoholic fermentation, are mere accidents. Among the allied processes referred to must be ranked, I think, the changes going on in the animal economy in the course of certain acute diseases, which, from their apparent analogy with the phenomena of fermentation, have been long named zymotic. The investigations of some of the best pathologists of our own day have supplied evidence of a positive kind in favour of that theory; and with reference to a few of the acute contagious diseases, there is, I think, satisfactory proof that they owe their origin to microscopic organisms belonging to the lowest orders of plants. The doctrine of the parasitic nature of the ordinary epidemic diseases, founded partly on the analogy already mentioned, and more recently on the results of exact observation and experiment, has received a further confirmation from the beneficial results following the use of well-known disinfectants having a parasiticidal action in the cure, and still more in the prevention, of some diseases of the kind now under consideration. To prove the action of disinfectants in preventing or checking putrefaction in substances liable to it is easy; but when we have to deal with the living animal, the matter becomes much more complicated, and hence perhaps the want of demonstrative force in the evidence adduced in favour of the action of disinfectants as preventive and curative agents in disease. An important step has been recently made by subjecting the virus or contagious matter of some diseases, such as glanders and vaccinia, to the action of disinfecting agents, and then testing its power of communicating the disease by inoculation. Such investigations have been carried on by Dr. Dougall, of Glasgow, and in a more thorough way by Dr. Baxter, whose experiments are fully described in the Reports of the Medical Officer of the Privy Council for the year 1875. It is there clearly shown that the ordinary disinfectants—carbolic acid, sulphurous acid, and chlorine—destroy the contagious property
of the vaccine and glanders viruses when applied to them in the same manner and in the same strength as is found sufficient to destroy the organisms causing putrefaction, and thus to put a check to that process. The chain of evidence, therefore, seems very complete in favour of these two points—(1) that certain acute contagious diseases are caused by the introduction into, and multiplication in, the animal body of minute vegetable organisms; and (2) that it is possible to destroy the contagious power of the virus by means of disinfecting agents, and so prevent the spread of these diseases. There may be room for difference of opinion as to what diseases can be included in this class; but there has been almost absolute demonstration supplied of the correctness of one or both of these points with regard to certain, and among these are to be reckoned especially anthrax, glanders, remittent fever, diphtheria, and vaccinia. When the virus has taken root in the body, it is very questionable if we can do anything to stay its progress. This is owing to the fact that we cannot introduce these parasiticidal agents into the animal system, in amount sufficient to destroy the morbific organisms, without at the same time doing irreparable injury to the delicate structures of which it is built up. But whilst we have thus to confess our impotence in the present state of our knowledge, and with the agents now at our disposal, I for one cherish the hope that the chemist, by means of the synthetical method of forming new compounds, will yet offer us some agent capable of doing all that is required. That salicylic acid has not done more to supply the want must have been to many, as it was to me, a grievous disappointment.

"We are thrown back therefore on prevention as the great field of our activity in this department of practical medicine; and there we may with confidence look forward to triumphs greater far than have been already attained, considerable as these are.

"As epidemic diseases generally spread by means of some virus, which has been formed in the body of animals suffering from them, and is conveyed in some way from these diseased animals to healthy ones, it is clear that if we could destroy with certainty all contagious matters as they leave the body the work of prevention would be done. That it is possible to destroy the viruses of all contagious diseases by mixing them with a sufficient amount of some disinfectant may be regarded as almost certain, since it has been actually done in the cases of several of them. Unfortunately, we cannot always obtain the virus in substance, so as to operate upon it in that way; and we are compelled, therefore, to consider the possibility of attacking it when it is suspended in the atmosphere, or attached to walls or other surfaces, in a dried state. That some diseases are conveyed by means of a dried contagium floating in the air seems to be certain, and therefore in the prevention of many diseases—such as scarlet fever, measles, small-pox—we have to face the problem of aerial disinfection, with all its difficulties. The only experiments made to test the effect of disinfectants, in the form of
vapours, on a dried animal contagium, which I have seen detailed, are those on vaccine virus by Drs. Dougall and Baxter. The general result of these was to show that concentrated vapours destroyed the contagious quality of the virus, when they operated for a sufficient length of time, just as the same agents in substances robbed fresh liquid vaccine of its power of communicating vaccinia. One other point is necessary again to adduce, and that is that the septic microzymes so abundantly found in ordinary processes of putrefaction are destroyed by the same agents used in nearly the same strength. These preliminary statements have now brought me to the ground and reason of my own experiments. Some of the animal contagia, as those of scarlet-fever, measles, and some others, are almost unknown to us as subjects of direct observation; but we have every reason to assume that they are subject to similar vital conditions with those which have been made the subjects of experiment, and therefore will have their virulence annulled by agents which act in that way, either on septic microzymes or on vaccine virus. My experiments have been made with these septic microzymes, which are always attainable, and whose death or continued existence can be proved with greater certainty than is possible in the case of the animal contagia by the method of inoculation, which is always liable to some fallacies. It is known that bacteria of different sorts, and especially these septic organisms, can live and multiply in a perfectly clear solution of certain saline matters, and the mixture known as Cohn's solution, is admirably adapted for their cultivation. I used a slight modification of that originally recommended by Professor Cohn, composed of the following ingredients:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartrate of ammonia</td>
<td>2</td>
</tr>
<tr>
<td>Sulphate of magnesia</td>
<td>1</td>
</tr>
<tr>
<td>Acid phosphate of potash</td>
<td>1 1/10</td>
</tr>
<tr>
<td>Chloride of calcium</td>
<td>200</td>
</tr>
</tbody>
</table>

When this solution is boiled and preserved from any contamination it remains clear for an indefinite time; but if the smallest portion of any substance containing the septic organisms, called by botanists the *bacterium termo*, is added, it gradually becomes milky, the rapidity with which this occurs varying with the temperature at which the fluid is kept. The mode of procedure which I adopted was as follows:—I obtained a supply of the bacteria by adding a few crushed peas to warm water and leaving the mixture till it emitted a putrid smell, when it was found on microscopic examination to be swarming with these and other organisms. Then, to obtain them free from admixtures, I inoculated a portion of Cohn's solution with a minute drop of this putrid fluid, with the result that in less than two days the previously limpid solution had become quite opalescent. The bottle in which it was contained was
shaken up, so as to obtain a uniform mixture, and a piece of filterpaper soaked with this, and then carefully dried in the sun for several hours. This bacterialised paper was preserved between the leaves of a book, and small portions of it used as required. To guard against fallacies I used the following precautions:—A number of small phials were taken, containing each about a fluid drachm of Cohn’s solution, and after being carefully plugged with baked cotton wadding, they were kept immersed in boiling water for a few minutes, so as to ensure the destruction of any bacteria which might by chance have obtained admission. After cooling, a portion of the bacterialised paper, which had been subjected to some disinfecting process, was put into one of them, the plug being removed for as short a time as possible. For the purpose of saving time a number of phials were thus charged and put aside in some protected place at the ordinary house temperature. As a check, I placed beside them one phial to which nothing was added, and another into which a piece of the bacterialised paper, pure and simple, of the same size as the others, was put. If the phial containing only boiled Cohn’s solution remained clear, this was a proof that there had been no accidental contamination, while if the one to which paper not disinfected had been put became opalescent, it was evident that the bacteria in it were alive (in the sense that a dried seed is alive) at the time the experiment was carried on. No experiment was held to be satisfactory unless both these tests were fulfilled.

“The endeavour was made to apply the disinfecting process in such a way as to allow of the results attained being made a guide in the practical use of these agents in every day life; and in the use of vapours the time required for destroying the bacteria was the point investigated, the concentration being that which could be attained by the usual simple methods.

“I. EXPERIMENTS WITH CARBOLIC ACID.

“A wide-mouthed 8-oz. bottle was used, about a drachm of crystallised carbolic acid being put into the bottom of it. The pieces of paper were suspended from a hook on the under side of the cork, which was fixed tightly in, and the whole left at the ordinary temperature of the atmosphere for carefully noted periods. A good deal of time was lost in feeling my way, in the absence of any knowledge at the time of similar observations.

“(1) Two pieces of the paper were exposed to the carbolic vapour for 9 hours, and then introduced into the solution. In both cases opalescence began to appear in 42 hours, showing that the bacteria had not been destroyed; though as the phial into which undisinfectected paper had been put began to be coloured in 36 hours, it appeared as if some of them had been killed, or at least in some way paralysed.

“(2.) Two pieces exposed to vapour for 19 hours. Both remained clear.
"(3.) One piece each 11 and 14 hours. Both remained clear.

"Suspecting now that the air contained in the bottle had not had time to become saturated with the carbolic vapour in No. 1, which was begun as soon as the crystallised acid had been put into it, and in view of the positive effect in Nos. 2 and 3, I next tried some shorter periods.

"(4.) One piece each exposed to the vapour for periods of $2\frac{3}{4}$, $3\frac{1}{2}$, 5, and 7 hours. The first two became opalescent, whilst the others remained quite clear. This experiment I considered quite conclusive, as the opalescence began to appear in the following order:—With the undisinfected paper in 60 hours, with that exposed for $2\frac{3}{4}$ hours in three days, and with that for $3\frac{1}{2}$ hours in four days. The longer time required in all than in Exp. No. 1 was due to the different temperature of the atmosphere, the first having been carried on in hot weather, and this in cold.

"It follows, then, that with the fullest possible concentration of the carbolic vapour at ordinary temperatures an exposure of more than $3\frac{1}{2}$ hours is necessary to ensure the destruction of the bacteria. As the conditions, in ordinary measures for disinfecting the air of a room by means of carbolic acid, can scarcely be made so favourable as in a closely-corked bottle, it must be evident that, as generally used, carbolic acid is useless for the purpose. To bring out this satisfactorily, however, I performed the following supplementary experiments.

"(5.) A tin of carbolic powder was taken, and all the perforations in the lid opened. The powder was then shaken up and two pieces of the paper left suspended close above it, one for 10 and the other for 24 hours. The solution into which they were put became opalescent with both in 3 days.

"(6.) Two pieces were sprinkled freely over with the carbolic powder, and left uncovered for 10 and 24 hours respectively. With both the solution remained perfectly clear after 14 days. The powder was therefore good and showed itself useful when applied in substance, but the result of the whole series is to show that leaving vessels containing carbolic acid or this carbolic powder in a room is useless as a measure for destroying contagion, and may indirectly be harmful by giving a false sense of security, and thus preventing the use of more efficient measures.

"II.—Experiments with Sulphur Fumes.

"(1.) One piece each exposed for 5 and 15 minutes to the fumes of sulphurous acid obtained by throwing sulphur on hot charcoal. The paper was suspended from a wooden box inverted over the vessel containing the charcoal pan, which was placed at the opposite corner. The box was not very close, and the fumes escaped freely. The solution containing the piece exposed for 5 minutes..."
became cloudy in 60 hours; that with the 15 minutes piece remained transparent.

"(2.) Two pieces again in a closer box, but without very copious evolution fumes, one for 5 the other for 10 minutes. Both caused the solution to become milky, though earlier by 12 hours with that exposed for only 5 minutes.

"(3.) Two pieces for 3 and 10 minutes in a close-fitting box, the vapour being more copiously evolved. The 3 minutes piece became opaque in 60 hours, whilst the 10 minutes one remained quite transparent.

"It follows from the whole series that whilst it is possible to destroy the dried microzymes by an exposure to sulphur fumes for 10 minutes, it can only be done under very favourable conditions. An exposure for 15 minutes, if at all thorough, will usually be sufficient.

"III.—Experiments with Ozonic Ether.

"These were carried on in a bottle in the same manner as with carbolic acid, about half a drachm of the ether being put into the bottom of a wide-mouthed bottle of about 5-oz. capacity, the pieces of paper being suspended from a hook on the under side of the cork.

"(1.) One piece each exposed to the vapour of ozonic ether for 10, 30, and 60 minutes. The 10 minutes piece caused opalescence in 4½ days, the same time as the bacterialised paper. The other pieces left the solution unaffected.

"(2.) One piece each for 10, 15, and 20 minutes. The 10 minutes piece caused only a slight opalescence, after 5½ days, the other pieces remaining transparent.

"It is clear from these experiments that in ozonic ether we have a powerful disinfecting agent, from 10 to 15 minutes of full exposure being sufficient to destroy the dried microzymes, and presumably the specific contagia of zymotic diseases. It is true that the high price of the ozonic ether would preclude its free use on ordinary occasions. These experiments are the only ones with which I am acquainted, as carried out in an exact scientific manner, and they have considerable interest in their bearing on the external application of ozonic ether in the form of ointment, as recommended by Dr. Day, of Geelong, for the purpose of destroying the contagium, and thus checking the spread of scarlet fever. It is very possible that direct contact with any contagious particles will render them powerless; but in view of the time required with the most concentrated vapour attainable, it is scarcely possible that the amount escaping into the air in the course of the process of inunction can have any effect on dried particles of contagium, which may chance to be floating about, or resting on walls or other
surfaces. On a small scale, and where the conditions approximate those of the experiments just detailed, the ozonic ether may therefore be used with advantage.

"IV.—Experiment with Chlorine.

"The general impression in recent times is that chlorine does not deserve the great reputation it formerly enjoyed as a disinfectant, and, indeed, experiments have tended to show that when the gas is dry it has little or no power as a bleaching agent or as a parasiticide. I made one experiment in which the bacterialised paper was exposed, in a wooden box with a loosely-fitting lid, to the gas, evolved in the usual way by adding a few drops of muriatic acid to chloride of lime. The chloride of lime was rather damp, and a good deal of moisture was carried up with the gas. Three pieces of the paper were left suspended in the box for 1, 3, and 4½ hours respectively. The solution containing the one-hour piece became milky in 4½ days, the other two remaining quite clear.

"It appears then that, used in the manner described, chlorine though not equal to sulphurous acid, is more powerful than carbolic acid. As ordinarily used, however, it can serve no good purpose, and sprinkling small quantities of chloride of lime on floors and other surfaces, in the hope of effecting any contagious matters floating in the air, must really be regarded as mere trifling.

"V.—Experiments with Dry Heat of 212° Fahr.

"These may not have very much value; but as I have not met with similar ones, they may be given for what they are worth. In the absence of any more elaborate scientific armamentarium, I adopted the following procedure:—Two short, wide-mouthed bottles were carefully washed and then heated strongly in an oven, so as to ensure the removal of all moisture and the destruction of any organisms which they might by chance have contained. When still warm a piece of the bacterialised paper was put into each, and a good plug of baked cotton inserted into the mouth, which was further covered with a cap of the same material. They were then immersed in water, which was kept boiling for noted periods. The paper lying flat on the bottom of the bottles must have been exposed to a temperature nearly, if not quite, up to 212° Fahr.

"(1.) One piece each for 10 and 30 minutes. The solution in both remained transparent, but I was somewhat doubtful of the trustworthiness of the result, as that which contained the unheated paper showed only a slight cloudiness after 4 days. This circumstance will be referred to again.

"(2.) One piece each for 15 and 45 minutes. The solution with the 15 minutes piece became cloudy only in 4 days, the test bottle being opalescent at the end of 2½ days. The 45 minutes piece had no effect.
(3.) One piece each 15 and 25 minutes. Solution in both cases remained transparent after 12 days.

"The conclusion come to, therefore, is that an exposure of these microzymes to a temperature of about 212° Fahr. must be continued for at least 15 or 20 minutes to ensure their destruction.

"Two circumstances of considerable interest came out in the course of the investigation, which I have reserved for separate notice. The first was that when the bacterialised paper had been kept for between two and three months, the organisms seemed to have lost their power of reproduction. What the cause may have been I am not prepared to say, but that this happened was certain, and it caused a good deal of confusion and perplexity in my mind, till I suspected the state of matters and prepared a fresh stock, with which satisfactory results were at once obtained. The paper was kept between the leaves of a book, and was dry and exposed to very little rubbing. Could it have been that in course of time the dessication of the bacteria became so complete as to be incompatible with continued vitality? Whatever the reason, it seems to follow that this particular species of bacterium cannot be kept in the dried state for very long periods without losing its vitality.

"The other point is also, I think, of some interest, as showing the varying capacity of resistance offered to disinfecting processes by the germs of different low vegetable organisms. On a good many of the pieces of paper which did not cause opalescence of the solution there appeared a copious growth of white mould, apparently the ordinary *penicillium*. The spores must have fallen on the paper at the time when it was exposed to the air, and they must have been subjected to the same destructive influence as the bacteria; and as they developed an abundant mycelial growth in several instances where the bacteria had undoubtedly been killed, it is evident that they possessed greater powers of resistance. In the detailed notes of my experiments I find that the mould appeared on paper which had been exposed to the vapour of carbolic acid for as long as 8 hours, a period of 3½ to 5 being sufficient for the destruction of the bacteria. On none of the pieces exposed to the fumes of burning sulphur was there any growth of mycelium. The ozonic vapour again, though capable of destroying bacteria exposed to it for 10 or 15 minutes, apparently had not injured the spores of the fungus after 60 minutes. Again, whilst the chlorine killed the bacteria when applied for something over an hour, two pieces of paper, exposed to it for 3 and 4½ hours respectively, showed a copious growth of mould. Even to heat, the *penicillium* spores showed greater powers of resistance. Thus the mycelium appeared on each of the two pieces of paper which had been treated for 15 and 30 minutes respectively, the bacteria being killed in both instances. None appeared on the paper which had been treated for 45 minutes.

"The conclusion to which I am brought, therefore, by the concurrent results of all these experiments is, that the spores of fungi..."
are less easily destroyed than dried septic organisms, and presumably than dried contagium of zymotic diseases—as Dr. Baxter's experiments with dried vaccine showed its power of causing cow pox to be destroyed by carbolic vapour in about 30 minutes, by sulphurous acid in 10 minutes, by chlorine in 30 minutes, and by a dry heat of 185° to 194° Fahr. for 26 minutes. He ventures to express the opinion—founded not on his own experiments, but on a few made by others on yeast and penicillium—that the influence of disinfectants on such fungoid spores affords no measure of their action on contagia, since the former are very much more susceptible to adverse influences than the latter. This opinion is directly contradicted by the results of the exact experiments here detailed, which show that any disinfectant which destroys penicillium spores in the dry state may be depended on to destroy bacteria, and so, presumably, contagia, which are even more easily destroyed, as a comparison of my observations with Dr. Baxter's on vaccine clearly shows."

MELBOURNE HOSPITAL CHRONICLES.

February 12.—Committee Meeting: A letter was read from Mr. Beaney, giving an emphatic denial to statements contained in an anonymous letter in the Argus under the head of "Management of the Melbourne Hospital," in which he was implicated. It was remarked by the secretary that the admission-committee had already had the case under notice, when it was considered that any explanation in the matter from Mr. Beaney was unnecessary, and under these circumstances the meeting resolved to receive the letter, and thereupon passed on to the next business. The secretary submitted a report, in which he begged to call the attention of the finance committee to the increased and increasing issue of extras to the patients. This, with the advance in contract prices for the largest items of consumption, would necessarily affect the expenditure for the current year. In the month of May, 1877, in response to the request of the committee, a reduction, equivalent in value to £11 per week, was effected. This continued for six weeks, when the increase to former rates in some articles was reached. Other items of diet had now, as compared with former periods, become very large in the daily issue, and required attention. Mr. Phillips moved that the names of Messrs. Plunkett, Meares, and Gibbs should be added to the finance committee, with a view of taking steps towards effecting a decrease in the expenditure complained of.

February 19.—Committee Meeting: Dr. Geo. Le Fevre, who was the only applicant for the position of hon. assistant-surgeon, to the institution, rendered vacant by the resignation of Dr. Hunt, was unanimously elected.
Mr. Phillips brought up the report of the committee empowered to deal with the question of reducing the increasing supply of extras, which had of late assumed an alarming extent. The report was a rather lengthy one, from which we extract the following recommendations:—“1. That the resident medical officer be prohibited from ordering articles of diet in excess of the diet scale, except under the directions of the honorary officers at their visits, or in cases of special emergency. 2. The same prohibition to apply to the ordering of stimulants, sodawater, lemonade, and ice, except in cases of emergency. 3. That the issue of fowl be prohibited. Towards giving effect to the above recommendations it is necessary—

1. That a commission be addressed to the physicians and surgeons, asking their attention to the subject referred to in the report, and their co-operation in reducing the cost of extras. 2. That fresh diet cards be issued from the office, with the diets entered thereon as at present, and that the honorary officers be requested to supervise the ordering of necessary extras. 3. That in the event of any resident medical officer finding it necessary to order stimulants, sodawater, lemonade, or ice for any case of emergency, he shall enter the order in the case-book for the information of the honorary officer, which entry he shall initial; he shall also, in his own handwriting, legibly fill up a requisition and sign the same, noting the page in the case-book, where the entry justifying the order is to be found. 4. That with the object of economising the issue of dressings for the wards, the duty of initialing the requisition books shall for the future devolve upon the matron. 5. In consequence of a difficulty in procuring a supply of cotton-wool it has been necessary to use tow for padding splints in the casualty-room; it is recommended that for the future the issue of cotton-wool to that department be discontinued, except for cases of burns or erysipelas. The sub-committee recommend that the following regulations be observed by the resident officers in ordering extras or stimulants for cases of emergency:—For food—To enter in his own handwriting the items on the diet cards, and also on a diet sheet in the ward, and to sign the same for transmission to the office each day before 1 p.m. For stimulants—To enter in his own handwriting in the case-book the stimulant required, and in a like manner to fill up and sign in full a requisition form, noting on the face thereof the page in the case-book in which the entry is made. In submitting their report, the sub-committee wished to remark that the attention of the medical staff had been repeatedly called to the large expenditure for extras. At one time the orders for champagne commenced in small quantities, but soon assumed large proportions. At another the orders for eggs were in excess of the ability of the contractor to furnish the supply. On attention being directed to these matters, reductions had been made and savings effected, but in a short time the expenditure had reached its maximum. At the present time the cost of provisioning the institution had so increased that the income—sufficient as it was for ordinary expenditure—was unequal to the present outlay, the
continuance of which would result in curtailing the benefits which the sick poor of the city and suburbs were entitled to expect and receive from the charity."

Mr. Phillips moved that the report be adopted. As the rules of the institution, however, required that all reports should be laid upon the table for one week, previous to discussion, it was decided that the report should be brought up for consideration at the next meeting.

February 26.—Committee Meeting: Leave of absence for one month was granted to Mr. Fitzgerald, resident surgeon, and Mr. Browning was appointed his locum tenens until his return.

Mr. Phillips moved the adoption of the report of the sub-committee appointed to report upon the consumption of extras in the hospital, of which the following is an abstract:—The sub-committee beg to report that they have held three meetings for the investigation of the subject remitted to them. They have examined returns showing the issue on the orders of the medical staff of some of the principal items of extras in excess of the ordinary diet scales; these show a surprising increase from year to year. At the same time it has not been stated that there is anything extraordinary in the nature of the cases treated, neither is there any noticeable alteration in the number of continuously occupied beds. The item of milk may be quoted as an example of the increase which has gradually taken place. The issue in December, 1866, was 4,679 pints; in December, 1873, 9,828 pints; and in the same month of 1877 the quantity amounted to 11,689 pints. In view of the fact placed before the committee, and the absolute necessity that exists for a reduction in the expenditure for extras—if the hospital is to be carried on with its present accommodation—the following recommendations are submitted:—1. That the resident medical officer be prohibited from ordering articles of diet in excess of the diet scale, except under the directions of the honorary officers at their visits, or in cases of special emergency. 2. The same prohibition to apply to the ordering of stimulants, sodawater, lemonade and ice, except in cases of emergency. 3. That the issue of fowl be prohibited. Towards giving effect to the above recommendations it is necessary—1. That a communication be addressed to the physicians and surgeons, asking their attention to the subjects referred to in the report, and their co-operation in reducing the cost of extras. 2. That fresh diet cards be issued from the office, with the diets entered thereon as at present, and that the honorary officers be requested to supervise the ordering of necessary extras. 3. That in the event of any resident medical officer finding it necessary to order stimulants, sodawater, lemonade, or ice, for any case of emergency, he shall enter the order in the case-book, for the information of the honorary officer, which entry he shall initial; he shall also, in his own handwriting, legibly fill up a requisition, and sign the same, noting the page in the case-book where the entry justifying the
order is to be found. 4. That with the object of economising the issue of dressings for the wards, the duty of initialing the requisition books shall for the future devolve upon the Matron. 5. In consequence of a difficulty in procuring a supply of cotton wool, it has been necessary to use tow for padding splints in the casualty room. It is recommended that for the future the issue of cotton wool to that department be discontinued, except for cases of burns or erysipelas. The sub-committee recommended that the following regulations be observed by the resident officers in ordering extras or stimulants for cases of emergency:—For food: To enter, in his own handwriting, the items on the diet cards, and also on a diet sheet in the ward, and to sign the same for transmission to the office each day before one p.m. For stimulants: To enter, in his own handwriting, in the case-book, the stimulants required, and in like manner to fill up and sign in full a requisition form, noting on the face thereof the page in the case-book in which the entry is made.

Mr. M'GUIGAN supported the report, and as an illustration of the waste that had been going on referred to certain statistics for the years 1865, 1873, 1875, and 1877. In 1865 the number of occupied beds in the hospital was 346; in 1873, 328; in 1875, 333; and in 1877, 335; while the cost of maintenance per annum was in 1865 £19,583 11s. 6d., or £56 1 s. 10d. for each patient; in 1873, £20,389 5s., or £62 3s. 24d. each; in 1875, £21,226 3s. 4d., or £63 14s. 10d. each; and in 1877, £23,789 10s. 9d., or £71 0s. 2d. each. With these figures he thought it was time to look into the matter. Taking everything into consideration, the cost of maintenance ought to be decreasing instead of increasing. In 1865 the average expenditure per patient compared favourably with the London hospitals. Many articles necessary for the sick were much dearer in London than they were here, and meat was considerably more than double the price. The medical officers ordered extras without any consideration. On No. 2 diet scale there was one pint of beef tea daily, but he found that some patients were getting an additional pint, as well in some instances a pint of essence of beef; in fact that seemed to be the usual thing. This was more than any patient could eat, and consequently a great portion of it went down the sink. He found that nearly a quart of milk and two pounds of meat were ordered daily for every patient in the hospital. He would suggest that a return should be laid before the committee every week of the cost of the extras ordered by each medical man.

Dr. REES said that having been a student, resident officer, and honorary physician in the institution, his opinions were entitled to some little consideration. He protested against the adoption of the report at the present stage. It contained a specific charge against the resident medical staff of having wasted the material at their disposal, and no opportunity had been given them of explaining the increase in the use of extras. In the annual report, adopted a few weeks ago, a glowing account was given of the satisfactory management of
the hospital, and now the committee brought up this fearful waste that had been going on for so long. The sub-committee said they had investigated the matter, but they had not interrogated any of the medical men who had ordered the extras. In order that there might be no mistake about it, he would ask Mr. Phillips, the chairman of the sub-committee, if such was not the case.

Mr. Phillips stated that the medical men were charged with unnecessarily ordering extras, and it was not therefore considered necessary to examine them on the subject. The nurses were examined.

Dr. Rees thought it was a scandalous thing. What authority were the nurses on the proper diet for the patients? It was also alleged in the report that the resident staff deceived the honoraries, which was a statement entirely unproved, and not supported by any evidence. He thought that the resident medical staff had been most unfairly treated by having been condemned without being heard, and he therefore moved as an amended that the report be not adopted until their evidence had been taken.

Mr. Gibbs could not see any reason for the great increase in the cost of maintenance between 1865 and 1877. The subscribers looked to the committee to prevent waste, and he should feel very much inclined to throw all the blame on the medical staff, and say the expenditure was avoidable. He had seen the way in which the medical men recorded their daily duties, and if they ordered extras in the same careless style he could understand the waste. It was the duty of the committee to supervise the expenditure, and he would suggest the appointment of a permanent sub-committee to look after the extras.

Mr. Meares thought that extravagance had been going on for a lengthened time. This had now been made public, and the subscribers would certainly hold the committee responsible for this misappropriation of their money. Twice as much was expended for stimulants as was necessary. The question was, Who was responsible? It was plainly the honorary physicians and surgeons who had neglected their duty, and had not exercised any supervision over the dietary as they were required to do by the rules. There were many excuses for the medical staff making mistakes in ordinary extras, but the honorary staff should have been a check upon them. If the honorary staff neglected their duties the committee should suspend them, and bring the matter before the subscribers.

Mr. Anderson thought that the report, if passed, would be inoperative. It did not contain a single workable suggestion. The institution was supposed to minister to the wants of the lame and sick unable to provide for themselves, and what had a lay committee to do with the medical treatment? They might as well take the whole matter into their hands at once. If people were admitted with nothing the matter with them, as the report stated, it was time some inquiry was made. The honorary and medical staff should
have been examined, and not a lot of nurses, who were not competent to form an opinion. It was a question of saying to the medical staff, will you keep on prescribing as you have been doing, or will you economise the funds and let the patients die? He thought the committee had better dismiss the medical staff and take the whole management upon themselves. No tangible results would ever be obtained until the committee appointed a head resident medical officer of high standing, whose duty it would be to supervise all these matters, and be responsible to the committee that no waste was permitted.

Mr. Lyons defied anyone in good health to eat half what was provided for some of the patients. Nearly one-third of the meat supplied to the hospital was thrown away, and he should like to know how it was that, after attention had been called to the matter, extras were discontinued to an extent that effected a saving of over £2000 per annum to the institution.

Mr. Laurens was of opinion that the committee were not to blame. Reference had been made to the annual report, but he did not think any importance should be attached to that, as everyone knew that it was a stereotyped affair, and little care was exercised in its preparation, the same as in every other public institution.

The Chairman remarked that in any large institution waste was always liable to occur. The figures that had been quoted were certainly startling, and there was no doubt that the medical officers had prescribed more extras than were necessary. It was the fault of the honorary officers in not supervising the diet cards. The hospital should not be made a place of luxury, but patients should be cured as economically as possible without in any way retarding their recovery.

The motion for the adoption of the report was carried with two dissentients, the amendment having been negatived.

Mr. McGuigan then moved—"That a monthly return be furnished to the committee showing the quantity and cost of extras ordered for their patients by each medical officer in the institution." The motion was carried unanimously, without discussion.

Mr. Bailliere wished to bring under the notice of the committee a statement that had appeared in the public press with reference to a patient named Farmer, to the effect that "Mrs. M'Kechnie is prepared to affirm, on oath if necessary, that one of the resident surgeons told her the fracture occurred in the hospital while he (the surgeon) was absent on leave." Dr. Munro was the surgeon referred to, and if he admitted the truth of the statement he (Mr. Bailliere) should move for a sub-committee to fully inquire into the circumstances under which the fracture was received.

Dr. Munro, having been called, was shown the statement, and he informed the committee that it was absolutely false. It was decided that Dr. Munro's statement was quite sufficient, and the matter dropped.
CORRESPONDENCE.

PEROXIDE OF HYDROGEN FROM EUCALYPTUS GLOBUS.

To the Editor of the Australian Medical Journal.

Sir,—Possibly the practical application of the dioxide of hydrogen \((\text{O}_2 \text{H}_2)\) according to Kingzett's method, as recorded in the Times of the 6th December, may not yet have come under the notice of the readers of the Australian Medical Journal. This is perhaps an apt opportunity to mention, in justice to myself, that the first introduction of the *Eucalyptus globulus* into the countries at the Mediterranean sea (as in America and elsewhere) was effected mainly by myself, through the instrumentality of Mons. Ramel, who saw my planted trees at the Botanic Garden in 1857, when they had reached a surprising height from seeds sown from my gathering in 1852. I showed the trees myself to Mons. Ramel, who never travelled in our Eucalyptus forests, and whom I have supported in the diffusion of the eucalypts through South Europe and North Africa ever since. I believe also that the seeds of the *E. globulus* trees raised in the Campagna came first from me, and were given to Archbishop Goold, when his grace visited Rome on the occasion of the great council about ten years ago. It was a sending made by my own impulse, as I knew the thoughtful prelate would take a vivid interest in my suggestion of seeing the *E. globulus* raised at Rome, both for sanitary and technical purposes.

Regardfully yours,

FERD. VON MUELLER.

The article now transmitted will also show the importance of the researches made by our friend, Dr. Day, on the dioxide of hydrogen.

The extract forwarded by Baron von Mueller is as follows:—

"SANITAS."

"The salubrious properties of the atmosphere in the vicinity of pine forests have long been known, and advantage has been successfully taken of their invigorating and restorative attributes by those suffering from diseases of the lungs. In America parties are often formed for camping out for a time in the pine forests, while the pine groves of Bournemouth and Arcachon furnish direct instances of the efficacy of this class of vegetation in promoting health under certain conditions. The *Eucalyptus globulus*, or blue-gum tree of Australia, is another and recently discovered example of the hygienic influence of vegetation, this tree having of late years acquired a high reputation for rendering habitable localities which were previously the unhealthy seats of malaria. In Algeria and Portugal are valleys
which only a few years since were most unhealthy, but which have been rendered salubrious by the planting of some of these trees; while a striking example of their fever-preventing properties is furnished by the re-habitation of a deserted cluster of monastic buildings in the most desolate part of the Campagna—about three miles from Rome. This was effected by some Trappist monks who planted, some six years since, groves of the eucalyptus. For centuries the fever-stricken monks had battled against the malaria, until towards the close of the last century the monastery was deserted. Although the particular efficacy of the eucalyptus globulus in preventing diseases and promoting health has been fully recognised, the connection between the cause and effect has hitherto been by no means clearly established. The clue to the connection has, however, now been furnished, and out of the discovery we have an important addition to our list of antiseptics and disinfectants, under the title of 'Sanitas.'

"This discovery, however, was not the result of direct inquiry, but of a purely scientific investigation, although of a cognate nature, in which Mr. C. T. Kingzett had been for some years engaged. Occupied in a prolonged inquiry into the nature and action of ozone, which was supposed to constitute the great purifying influence in nature, Mr. Kingzett endeavoured to satisfy himself that its presence was due, as was generally supposed, to the evolution of the gas from plants exposed to the air by the process of slow oxidation. But the real proof of the production of this active principle was not forthcoming, and Mr. Kingzett was ultimately led to believe that plants did not produce ozone, but peroxide of hydrogen. Following up this notion, he proceeded to establish the correctness of his hypothesis by a series of experiments, and in the end he succeeded beyond all question. He submitted a large number of oils and other bodies to the influence of atmospheric air under various conditions, and found that they all absorbed oxygen very rapidly, the gas entering into combination with them and forming new substances. This faculty of absorption, he found, was possessed in a far higher degree by turpentine than by any other substance tested. He further found that when turpentine was exposed to a current of air in the presence of water at a temperature about equal to that of average summer heat, oxygen was absorbed, a portion of the oil was resinified, and the remainder oxidized into a compound unstable in the presence of water, and splitting up thereby into the peroxide of hydrogen and camphoric acid. His conclusions, therefore, were that the hygienic principle common to pine groves and the eucalyptus was the evolu-
tion of the peroxide of hydrogen and camphoric acid, the cause being the volatilization of naturally secreted oils. He was, further, con-
vinced that it was not upon the odour of either of these that the principle depended, but upon the 'terpene,' or principle of turpen-
tine, which was common to all, and most powerful in the pine-
produced turpentine of commerce.

"This discovery having been made, it then became Mr. Kingzett's
study to imitate at will the effect produced on a grand scale in nature. He had established the fact that the healthy atmosphere of the pine wood or the eucalyptus grove was referable to the presence of peroxide of hydrogen and camphoraceous substances produced by the resinous oils secreted by those trees; he had proved that these valuable natural purifiers could be produced from common turpentine, and he had now to manufacture them in such a form and on such a scale as should render them useful to the community as antiseptics and disinfectants. Here we would mention that Mr. Kingzett does not claim to have discovered the disinfectant properties of peroxide of hydrogen, which have long been well known, although the method of its preparation has hitherto been too expensive to admit of its use for sanitary purposes. What Mr. Kingzett takes well-merited credit for is the identification of its purifying power with that of the pine and eucalyptus, and the invention of a process of manufacture which enables the substance produced to take its place as an article of commerce. In reducing his principles to practice, Mr. Kingzett associated with himself Mr. M. Zingler, and they together carried out a series of experiments and devised a set of apparatus, which they perfected by slow and laborious degrees until it was finally brought to that successful point at which we found it yesterday, when we saw it fully at work manufacturing sanitas on a commercial scale.

"The works at which the fluid is being made are situated in Three Colts' lane, Bethnal Green, and were yesterday visited by about 100 gentlemen, many of whom were men of considerable eminence in various departments of science. Among the company were M. le Vicomte Duprat, M. L. Straitsinger (the Portuguese Vice-Consul), Dr. C. W. Siemens, F.R.S., Dr. S. Lovett, Dr. B. H. Paul, Professor Bentley, Dr. Rygate, Dr. S. Gibbon, Dr. H. E. Armstrong, F.R.S., Sir T. Kirkpatrick, Mr. F. Varley, and others. The visitors were received by Dr. F. W. H. Ramsay (the Chairman of the Sanitas Company, the offices of which are at 57 Moorgate-street), and when they were assembled Mr. Kingzett explained to them the object and method of his research, his discovery and its results, with which we have already dealt. He then proceeded to explain the process of manufacture and the apparatus used, which we have now to describe. There is in the first place a small steam engine of special construction, taking low-pressure steam from a vertical boiler and working a blower. The engine consists of a short cylinder with a piston which may be described as a blade fixed longitudinally on a shaft, which passes through the ends of the cylinder. The steam is so admitted and cut off as to give the shaft a partial revolution on its axis, after which it is returned, so that a sort of reciprocating rotary motion is obtained. This engine has nothing to do with Mr. Kingzett's invention, but is simply used as a convenient source of motive power to drive the blower, which has a motion corresponding with that of the engine, and the use of which will presently be seen. In a line with the engine and blower is a row of five wooden vats,
Correspondence.

[Feb.

each containing an earthenware vessel or producer, about 3ft. in diameter and 4ft. high. The lower portions of these vessels are surrounded by water, which is contained in the vats, and which is kept at a temperature of about 50deg. centigrade. These producers are charged with about 90 gallons of warm water, upon which is poured turpentine to the depth of about 8in. Over the producers runs an air main from the blower, and from this a branch pipe is led into each vessel, terminating at the junction formed by the turpentine and water. A blast of hot air is introduced into the turpentine, the effect of which is to oxidise it, and to cause it to throw down certain of its constituents in combination with the oxygen of the air into the water. In course of time the turpentine is decomposed; the process, however, is carried on for periods varying from 60 to 200 hours, according to the strength of product required. On completion of the process the aqueous residuum in the vessels is drawn off and constitutes the sanitas of commerce, which requires no subsequent treatment beyond filtering, after which it is bottled for the market.

"Although the bulk of the valuable antiseptic and disinfectant principles are thrown down into the water, a portion passes off through an escape-pipe as inflammable gas. The air which has parted with a large proportion of its oxygen to the turpentine, has taken up some of the latter, which has to be wrested from it. This is effected by causing the air to pass first through a condensing box, 23 ft. long, 3 ft. high, and 1 ft. wide, placed to the rear of the producers, and afterwards through a series of pipes of large diameter, set vertically, and charged with pumice-stone, by which means the last atom of turpentine is recovered from the air. In its journey through this apparatus, the air is made to pass through water, which picks up the turpentine, and is afterwards returned to the producers, so that there is no waste in the process.

"After describing the process of manufacture, Mr. Kingzett explained the manifold purposes to which sanitas is applicable. Possessing as it does the double power of disinfecting the products generated by fermentation and decomposition when they have already commenced, and, if applied in time, of preventing those natural processes, it will be seen that the scope of its application is very wide. Not the least important of these, perhaps, from an economic point of view, is the preservation of food, especially as regards the importation of fresh meat from abroad. It also occupies a very important position as a disinfectant, as it does not either injure or stain textile fabrics, neither is it poisonous. These points were clearly demonstrated by Mr. Kingzett, added to which highly favourable opinions as to its merits have been given by Dr. Hassall and other authorities. In short, a very brief experience appears to have been sufficient to prove the value of sanitas, which will now take its place as a valuable antiseptic and disinfectant."—The Times, Dec. 6, 1877.
LOCAL TOPICS.

The following gentlemen registered their qualifications at the meeting of the Medical Board on the 1st of February:—Arthur Bennett, Stawell, L.S.A. Lond. 1876, M.R.C.S. Eng., M.B. et Ch.M. Aberd., L.R.C.P. Lond. 1877; George Le Fevre, Melbourne, M.B. et Ch.M. Ed., L.S.A. Lond. 1877; Alexander Murray, Prahran, M.B. Melb. 1877; Francis Elliott Corbett Singleton, Kyneton, L. et L.M. R.C.P. et S. Ed. 1874. The following name was erased from the register: George Glendenning, Geelong, deceased.

The following vaccinators have been appointed: Dr. Charles Smith, for the district of Casterton and Sandford, vice Dr. W. J. Smith resigned.

The Sydney Morning Herald of Feb. 15 had the following:—A New Cure for Consumption.—The old belief, still lingering in many parts of England, that the only remedy for consumption is to take lodgings above a butcher’s shop, is just now (says the Daily News, of December 18) receiving a strange confirmation in America. Active-minded New Yorkers, on the alert for a novelty, have invented a new cure for pulmonary disease. Very dissimilar natural productions have, from time to time, been recommended by the medical faculty to patients afflicted with diseases impregnable to drugs; for instance, the milk-cure, the whey-cure, the grape-cure, the water-cure; but none of these is so curious as the blood-cure, now practised at the abattoirs of New York. Starting from the position that butchers are rarely attacked by phthisis, it has been supposed that the vitality of expiring animals unites with the atmosphere, and is absorbed by those people who are immediately about the body at the time of death. This vitality is supposed to exist in the blood, and many persons daily visit the abattoirs to catch the hot blood of the bullock, and by drinking it nourish and sustain their own exhausted vitality. Numerous instances are cited of cures effected by this method, said at first to be exceedingly repugnant to patients, who, in time, however, take their dose of hot bullock’s blood as easily as any of the other curious drinks fashionable in Manhattan. It is, of course, inevitable that stories of the blood-drinkers are invested with a halo of romance which interferes not a little with a clear perception of actual facts. There is of course, the pale young damsel of the “upper ten,” who drives down to the abattoir, to take her turn, in a chariot, and receives her hideous draught in a silver cup tendered by a tall young man with a moustache; but she is hardly more interesting than the youth who, after being cured of consumption by draughts of blood, is consumed ever after by a thirst for that beverage, and on being denied it springs like a vampire on his brother. When these thrilling incidents are dismissed, the residue of fact appears to be that butchers and slaughtermen do not themselves drink the blood of the animals they slaughter, being quite content with the atmosphere surrounding them, and that the blood-drinking enthusiasts are pursuing the treatment in defiance of their medical advisers, who look with an evil eye upon the blood-cure. This antagonism on the part of the faculty is attributed by the enthusiasts to mere professional jealousy.
BIRTHS.

DESHON.—On the 20th February, at Yarra Bend, the wife of F. P. Deshon, M.R.C.S. Eng., of a son.

REID.—On the 27th February, at Geelong, the wife of David Bothwell Reid, M.R.C.S. Eng., of a son.

NOTICES TO CORRESPONDENTS.

Communications have been received from Dr. Bird, the Registrar-General, Baron von Mueller.

The following publications have been received:—The Lancet for Nov. 17, 24, Dec. 1, 8; British Medical Journal for Nov. 17, Dec. 1, 8, 15; The Medical Press and Circular for Nov. 14, 21, 28, Dec. 5, 12; The Students' Journal for Dec. 8; Trubner's American and Oriental Literary Record for November; "Brief" for Nov. 10, 17; The Anglo-Indian Commercial Advertiser for Nov. 30; The Australian Practitioner for January; The New York Medical Record for Dec. 8, 15, 22; The Pacific Medical and Surgical Journal for December; The Mechanism of Joints, by Harrison Allen, M.D.; The Localization of Diseased Action in the Oesophagus, by Harrison Allen, M.D.; Note on the Anatomy of the Perineum, by Harrison Allen, M.D.; Annual Report of Ballarat District Hospital for 1877; Twenty-first Annual Report of the Council of the Pharmaceutical Society of Victoria; Patents and Patentees, volume IX; Hospital Construction, by Isaac P. Noyes; Pacific Medical and Surgical Journal for January; The New York Medical Record for Dec. 29, Jan. 5, 12; The Canada Medical and Surgical Journal for December; Patents Index (Victoria) 1874.
Library Digitised Collections

Title:
Australian Medical Journal 1878

Date:
1878

Persistent Link:
http://hdl.handle.net/11343/23142

Terms and Conditions:
Articles from the Australian Medical Journal have been made available as permitted under the Copyright Act 1968. Any further reuse or reproduction is subject to the following: Copyright has expired: Where the author of an article died before 1 January 1955, copyright has expired under Australian copyright law and the material has passed into the public domain. Please note that this may not be the case in other jurisdictions, and it may be necessary to refer to the copyright law in your region when using this material; Articles still subject to copyright: Where the article is still protected by copyright, articles have been made available as permitted under section 200AB of the Copyright Act 1968. This material is subject to copyright and any further reproduction, communication, publication, performance, or adaptation is only permitted subject to copyright legislation in your jurisdiction.