hospitals open fireplaces are usually sufficient; slow combustion grates are best, with fresh-air inlets at the back of the stove where the air can be slightly warmed before delivery into the room. Additional inlet ventilators may be placed in the external walls, and should be constructed of glazed pipes and have hinged gratings for access to the flues for cleaning. All cupboards should, where possible, be ventilated with a small window or ventilator. A good substitute for the very expensive bedpan sinks in common use is a swivel tap fixed over a water-closet, and made, like a gas bracket, to shut against the wall; it is inexpensive, and answers the purpose for washing out bedpans. A nurses' sitting-room is an essential, and should have a good outlook. A good inexpensive floor can be made for the ground floor by sticking ordinary plain-coloured linoleum upon the concrete and then wax-polishing it; the concrete must be very dry before this is done. There should be no mouldings and as few projections as possible. For a cottage hospital nothing looks better than whitewashed walls and apple-green paint or stain, and this decoration is cheap and sanitary. It is more economical to treat the internal woodwork with stain and varnish than paint. The drainage should, if possible, be taken to a sewer; earth closets are very sanitary for small buildings, but there is the difficulty of cleaning bedpans. If there is sufficient land available a small septic tank system can be used with advantage.

As to the question of cost, it should be clearly understood that it must also vary according to the site and the neighbourhood in which it is situated, and upon the details and furnishing of the building. It is an utter fallacy to talk, as so many people do, of the cost of hospitals at so much per bed; it is far more reliable to compare the cost by the relative price per cubic foot of the building; about 7d. a foot cube is the lowest price at the present time at which a really good cottage hospital could be built, and this would probably work out at about £250 a bed for a six or eight bed hospital.

The present Cranleigh Cottage Hospital, of which we give the ground plan, is interesting, as it shows how a small cottage hospital may be extended. The former hospital is now used for administration purposes, and a new building is connected to it by a short corridor, and contains two wards, each 23 ft. by 14 ft., and holding four beds; the nurses' room is between the wards, and can be used as an operation room. The total cost of this new block was about £1,800. The staff consists of a resident nurse who acts also as housekeeper, and one servant. The lady honorary secretary exercises some sort of general supervision. The patients pay from 3s. 6d. to 10s. a week according to their means; if a serious operation is necessary, then an extra nurse is engaged from a London nursing home, and the cost defrayed from the general funds. For the loan of the plan and the above information we are indebted to Dr. Napper, medical officer to the hospital and son of the original founder.

A NOTE ON SEPARATE OPERATING ROOMS AND THEIR MANAGEMENT.

By GEORGE G. HAMILTON, F.R.C.S.,
SURGEON, LIVERPOOL ROYAL INFIRMARY.

WHEN the Royal Infirmary, Liverpool, was erected, some fifteen years ago, our surgical authorities were still in favour of large operating theatres, a gallery to seat on-lookers being provided. Each of the three surgeons had two operation days a week.

It was at that time thought desirable to have also a small theatre where minor operations and emergencies could be dealt with, and to provide a separate theatre for the gynaecologist.

Almost immediately after this date aseptic surgery made great strides, and it was found necessary to have smooth walls and floors, no furniture that could collect dust, and so on. Then followed the time when much money was spent in elaborate operation rooms, some costing as much as £10,000.

By general consent in Liverpool the plan of having one theatre for each surgeon, assistant surgeon, and staff of dressers was admitted to be the ideal, and six years ago the large theatre was roofed over and converted into an

x-ray room, two moderate-sized operating theatres being erected on the top of this structure.

Two years later the small theatre was enlarged, and a top and side light were arranged for, so that now each surgeon has fifty beds, with a theatre close at hand, in which he, his assistant surgeon, and dressers work.

There is a nurse for each theatre. One, having the title of "Sister," is responsible for the instruments generally, but each nurse is responsible for the proper working of her theatre, and the sterilization of all dressings for the 50 beds connected with that theatre. In the case of the gynaecologist, the Sister of his ward has also charge of his adjoining operating theatre.

Each theatre has an anaesthetic room attached, and there are four anaesthetists to the hospital. The house-physician on duty gives the anaesthetic in emergency cases.

The theatre ambulance arrangements are very simple, and one porter only is on duty at a common lift, the patient being brought on a wheel ambulance the same height as the operating table by the Sister of the ward and a dresser. We have a very useful contrivance for lifting the patient, which consists of four flat hand grips fixed to a square made of webbing which is placed under the patient's hips. One assistant reaches over the table and catches two of the handles, while a second assistant holds the other two, and the patient is half lifted and half slid from the ambulance on to the table.

The walls of the two new theatres consist of a dado of alabaster and a smooth surface of ripolin paint above; but where the sterilizers are in the theatre, as ours are, there is no doubt that tiles are the best. Tiles can be fitted so closely now that practically they are one continuous surface; and, after all, a sheet of glass, if one runs one's finger over it, can be shown to hold plenty of dust. The floors are of papyolith, which has not been found to be so good as either terrazzo or "torgament"—the latter an asbestos material, its chief advantage being that it is free from glare. The terrazzo can be continued, as at the new Liverpool Infirmary for Children, without angle from the floor into the dado. The doors are of hard wood varnished, and both theatres have their light from the top as well as the side. In my theatre the floor has been continued into two raised steps, with the narrowest possible railing and a separate entrance for students, who, notwithstanding the railing, are close to the operator. The doors here are of sheet aluminium on wood, and help to give more light in the darker part of the theatre.

An important point in the electric illumination of these theatres is that the lights are on swing arms. This does away with a constant source of dust immediately over the operator during day operations. Each light is on a separate fuse and switch, so that the theatre can never be in total darkness unless the main fuse goes. An acetylene lamp is provided for such a rare contingency. A wet mat and a dry mat for cleansing the boots are placed at the entrance, and provision has recently been made to prevent the entrance of flies by means of gauze frames.

Sterilization is carried out in the theatres, and the disadvantage of heat and moisture are got over by sterilizing all dressings on the days on which there are no operations. A cold jacket at the top of the sterilizer has been suggested to prevent too much moisture entering the theatre, and condensing on the roof and walls.

Almost all our surgeons wear gloves, and septic cases are taken last. We have been unable to trace any evil results from these septic cases, which are isolated in a separate room at the end of each ward. Several of the surgeons change entirely into white ducks and a flannel shirt before operating, and the heat of the theatres is rather an advantage to the patient, especially in cases of abdominal section. Some wear masks and some do not. I understand from a friend, who has returned from a recent visit to most of the important German hospitals, that masks have been given up, and that about half of the surgeons now operate without gloves.

The university laboratories adjoin the theatres, and the pathologist and assistant pathologist, who are in telephonic communication with the theatres, make constant cultures from dressings, gowns, towels, ligatures, water, etc. They also cut rapid microscopic sections of fresh growths, and in six minutes an opinion of much value can be obtained.

Post-mortem examinations are made after operation

hours, and since the establishment of a low temperature room, the bodies are in a much less septic condition.

In conclusion, I would say that our desire should be to teach the student by a good object lesson the simplest way of safely carrying out an aseptic operation, and that this is best done in a small theatre with the students close by.

If the number of spectators is large, then they must be separated into different theatres; in fact in America, large classes of any kind are being done away with altogether.

THE PROMOTION OF UNIFORMITY IN THE REGISTRATION OF DISEASES IN HOSPITALS.*

By R. F. TOBIN,

SURGEON, ST. VINCENT'S HOSPITAL, DUBLIN.

SOME months ago the Board of Superintendence of Dublin Hospitals receiving Government grants, of which I am secretary, decided that it would be well to amend the form on which the hospitals send in a classified annual return of patients admitted, and I was directed to look into the matter.

There was certainly necessity for the change, for the old form was quite obsolete—the classification being alphabetical, with the inclusive term "abscess" holding first place on the list.

I shall not delay you by mentioning those with whom I have corresponded—Science does not recognize nationalities, and the list is therefore a long one—but I shall take this opportunity to thank all on that list for their letters and suggestions.

Any one carrying out such an inquiry will be struck first with the excellence of the *Nomenclature of Diseases* of the

* A paper read before the Section of State Medicine, Royal Academy of Medicine, Ireland, May 1st, 1908.

Royal College of Physicians—how far it is in advance of all other classifications, and most with the fact that the profession generally knows very little about it. My own ignorance of it was the first thing that was brought home to me, and then came the consolation of finding how widespread was my shortcoming. My feelings towards the book are now those of a converted collier towards temperance. The care bestowed on its compilation, the eminence of the men who have worked at it, the difficulties as regards classification that have been overcome, the education that lies in an intimate acquaintance with it, are ever before me.

The means I suggest for promoting uniformity in the registration of diseases in hospital is very simple. It consists in putting in every admission and discharge book, alongside the column for the names of diseases, a column for the numbers given to these diseases in the *Nomenclature*, and in using, when the annual returns are being prepared, these numbers as a means of classification and of bringing together the various diseases in their proper order.

This simple means of classification is in use in preparing the returns of the Army Medical Service, and it is found to work well. The numbers identify the words, and the necessity for looking out the number leads one to using the proper word. It means the banishment of such terms as "struma," "scrofula," etc. And here let me remark that since my conversion it has been a wonder to me why the Registrar-General has not given us a space for these numbers in the certificates of deaths and asked us to fill them in.

The addition of the number in each entry of a disease in the Admission and Discharge Book in place of giving increased trouble has, as is always the case with what tends to order, a quite different result. In a very short time one comes to know the numbers of all the principal diseases, and so the initial trouble disappears while this advantage is permanent—that from

A CLASSIFIED ANNUAL RETURN OF THE DISEASES OF PATIENTS Treated in Hospital during the year ended 31st March, 19

The following entries are made with a view to illustration.

No. in <i>Nomen- clature.</i>	Disease.	No. Treated.	No. Died.	Class.	Totals of Each Class		Remarks.
					Treated.	Died.	
13	Enteric fever	6	1	Infective	33	5	
38	Scarlet fever	4	2				
44	Tuberculosis, lung	20	2				
44	Tuberculosis, knee-joint	3	—				
44	Tuberculosis, abscess tibia	1	—				
44	Tuberculosis, lupus	2	—	Intoxicants	6	1	
50	Alcoholism	4	1				
59	Plumbism	2	—				
79	Lipoma, circumscribed; back	4	—	New growths non-malignant	5		
79	Papilloma, villous, vesical	1	—				
80	Sarcoma, spindle-celled, femur	2	1	New growths malignant	10	2	
80	Sarcoma, spindle-celled, testicle	1	—				
80	Carcinoma, scirrhus, breast	4	1				
80	Carcinoma, epithelioma, lip	3	—				
171	Keratitis	5	—	The eye	18	—	
193	Congestion, optic disc	7	—				
204	Lenticular cataract, complete, senile	6	—				
1,025	Burn, forearm and hand, skin	1	—	Injuries	12	2	
1,041	Wound, common carotid, partial division ..	1	1				
1,089	Wound of scalp, with injury periosteum ..	1	1				
1,096	Concussion of brain	1	—				
1,145	Fracture, ribs	2	—				
1,205	Fracture, radius, Colles's	4	—				
1,233	Dislocation, femur	2	—				