

*An Asylum, or Hospital-Home, for Two Hundred Patients: constructed on the principle of adaptation of various parts of the house to varied needs and mental states of inhabitants; with Plans, &c.** By T. S. CLOUSTON, M.D.

Principles of Construction, etc.—I think I am justified by modern Scotch and English experience, as well as by my own, in laying down the following principles for the construction of an asylum for the insane, accommodating two hundred patients, and suitable for every class of the population, which, I understand, is an essential element in the solution of this problem in America.

1. The site should be somewhat elevated, sloping, and exposed towards the south; sheltered, if possible, from the prevailing winds; the subsoil dry; the buildings to be rather nearer the northern than the southern boundary of about one hundred acres of wooded land, with an accessible water supply of fifty gallons for each patient a day, within two miles of a large town (that with a medical school being selected, if any such exists).

2. The buildings being intended for the treatment with a view to recovery, and the care, of a number of persons who, though all mentally affected, are individually and in classes in different states of mind as regards the following points: *a.* Safety to themselves. *b.* Safety to others. *c.* Intelligence. *d.* Curability. *e.* Capacity for social intercourse and enjoyment. *f.* Daily habits of life. *g.* State of bodily health. *h.* Capacity for useful and other employments of entirely different kinds. *i.* Capacity for joining in amusements of different kinds. *k.* Necessity for care and attendance on the part of others. *l.* General trustworthiness: it necessarily follows that uniformity of accommodation and arrangements throughout the buildings should be most carefully avoided.

3. At one end of the scale, we have the insane who, as regards their mode of living, differ so little from the sane, that accommodation precisely like that afforded by the ordinary houses to which they have been accustomed is quite suitable for them.

4. At the other extreme are the deliriously maniacal, the intensely suicidal and homicidal, the paralysed, those absolutely enfeebled in mind, and those very weak in body, for whom very special hospital accommodation has to be provided suitable to their needs.

5. There are intermediate classes who require modified supervision, nursing, attention, and, therefore, accommodation intermediate in character between those two extremes.

* The author having been requested by the State Board of Health, Massachusetts, to furnish the plans of an asylum, with a description of them for publication in their Tenth Annual Report for 1878, the following is reprinted by permission from that Report. The introduction is omitted. T. S. C.

6. It should be a principle, never departed from, that the structures and arrangements that are necessary for the worst classes of patients should not be used for the best.

7. The special structures and arrangements for the treatment of the worst class should be as little special as possible, consistently with fulfilling their purpose, and should be modelled on medical and humanitarian, not prison principles. They should all be arranged so that they imply unceasing attention and vigilance on the part of the skilled and responsible officials and attendants: anything whose object or effect is merely to save trouble and watching in the treatment of an acute case of mental disease may be regarded as utterly to be condemned.

8. All things that give an air or sense or feeling of confinement should, as far as possible, be avoided; many of the insane being super-sensitive in regard to the effect of their surroundings.

9. Every thing that produces "cheerfulness" of effect, inside and outside an asylum, should be most carefully studied, down to the minutest detail of painting and furnishing. This has been abundantly proved to be of the utmost importance for healing, hygiene, and happiness. Variety in the shape, size, and aspect of buildings and rooms, tends to interest, rouse, and cheer the patients, when they pass from one into the other.

10. An asylum should have every sort of strictly medical appliance of construction and arrangement for isolation, trying and studying the effects of drugs and treatment, baths of all kinds—Turkish and medical—microscopic and necroscopic rooms, &c.; every thing, in fact, to encourage and facilitate medical study, investigation, and treatment of the individual cases.

11. It should be remembered, in constructing and furnishing an asylum, that the chief things of which insane patients treated in asylums complain are: *a.* Removal from home. *b.* Being "locked up." *c.* Want of employment for which they are paid, and in which they take an interest. *d.* Control by attendants. *e.* Monotony of life. *f.* Association with "lunatics," meaning thereby fellow-patients worse in some respects than they are. It follows, that in constructing and furnishing the buildings of an asylum, and arranging its various parts, great care should be taken to provide for liberty, domesticity, classification, employment, amusement, and social intercourse between those who will enjoy it. Opportunities must be given for the creation of an artificial home life, as nearly like the natural as is possible.

12. It is impossible, in carrying out the foregoing principles, to avoid all risks of sudden impulses to violence, suicide, escape, &c.; but my experience is, that such risks are best avoided by a careful daily study and observation of the individual cases by the superior officials, and more especially by the medical officers. I often deliberately run risks for the sake of the happiness and cure of my patients; and I think this principle has by no means been carried out far

enough. Who, if he had his choice before he became insane, would not prefer that the risk of suicide should be run in his treatment, if by that means there was any chance of his being saved from falling into dementia? If boys were brought up on the principle that they should run no risk of accidents, or even were ordinary houses or manufactories built, or carriages constructed, or railways run, on this supreme principle, "life would not be worth having" for any of us. I maintain that there are infinitely worse things in asylum management than "accidents."

13. After all, the risk of accidents is best met, and the necessity for irksome supervision and precaution avoided, by placing the patient in such circumstances that he works and plays, and forgets his morbid humours. Irritability, and consequent unhappiness, are best diminished by giving scope for expending muscular energy in the open air. To know how best this can be done for each case, implies a study of the patients that is good for patient and doctor. I have seen both systems tried. When I came to Morningside Asylum, in 1873, there were high-walled airing courts, a "refractory ward," and only about one hundred and ten male patients out of three hundred going out to the garden and workshops from the "West House;" while it was the rule, that no patient was sent out to work in the garden without special orders. Now we have no "refractory ward," no airing courts; two hundred and ten patients go out to gardens and workshops every day, besides twenty-five who assist attendants. The rule is, that all the patients go out who are not under orders to stay in; but then an assistant physician sees them go out every morning, and turns back any patient who is not fit to go. I never really knew my "refractory patients" till I had to provide each with suitable employment; and some of the very worst, who had been for years reckoned dangerous men, are now the most useful workers we have. One such man, a perfect type of "monomania of suspicion," who used to have a daily fight with some one, is now absolutely the most profitable inmate of the institution, making and mending every tin and copper dish in the place. If fearful sounds are heard in the workshop court, it is known that "Joe" is taking it out of his imaginary enemies (for he still has the former delusions), by ferociously hammering a flat tin plate into a form suitable for a kettle. No sane man I ever saw could do it so quickly. If he has a fight it is only on a Sunday.

14. Patients should nearly all (except the sick and weak) dine in a central dining-room in association, for the following reasons: *a.* The meals are thus more hot and comfortable. *b.* The service is better. *c.* The supervision by medical and superior officers is more complete. *d.* There is a variety in the life, change of scene, and a means of passing the time secured. Who that has lived in a hotel has not felt the charms of going to the *table d'hôte*? *e.* The increased self-respect that is implied in extra attentions to dress and personal appearance is thus best secured. Since we began to use a common dining-room here, several inveterately untidy patients have been cured of their

slovenliness of dress. *f.* Self-control is taught. The public opinion of the room or the table won't tolerate noise or disturbance. New patients get to feel this at once. *g.* The wards and parlours are thoroughly aired and ventilated during the absence of the patients.

15. The dining-rooms should be large, lofty, and very well lighted, and should have a totally different character, as regards colour, decoration, and architecture, from the wards and parlours. The Swiss hotel-keepers have long ago found this out.

16. The passages to the dining-rooms should be constructed chiefly of glass, to secure cheerfulness. Thus constructed they afford a grand opportunity, which has never yet in any asylum been fully taken advantage of, for being a "winter-garden," fitted with evergreen hardy plants. Looking after those would afford a pleasant kind of work to the patients during the winter, when they have no garden work, and can't get out. Thus treated, they afford delightful exercise and smoking corridors for many others, and especially for excited patients when they cannot go out. Some of the glass corridors to the Pavilion blocks at the Garlands Asylum, Carlisle, when I was there, were brilliant with flowers; and so are now the passages to the dining-rooms here, thus producing a most pleasing effect on the minds and spirits of the patients.

17. The beneficial psychological effects on the patients, of bright, cheerful colour in the wards, dining-rooms, and passages of asylums, have by no means as yet been sufficiently considered. I have had nearly the whole asylum here tastefully painted in most brilliant colours by the very best and most artistic colourist house-painter in Edinburgh, with very good results. I maintain that money is thus well spent in painters' bills. I have used for the same purpose somewhat lavishly, in the passages, Minton's floor-tiles of bright colours, stained-glass in the windows, &c.

18. Drawing-rooms for associated amusements of both sexes, billiard-rooms, &c., should be provided.

19. Workshops of many kinds should be a *sine qua non* of every asylum, and one large "general amusement workshop," where the amateurs of all trades can find suitable tools, materials, and room for even their perverted ingenuity. I had a man who for five years provided himself with a most engrossing occupation in trying to construct a machine for perpetual motion. I have now a man who does so, in making toy chairs out of sticks cut in the grounds, with no tool but a penknife, and no fastenings but pins. For ten years a man here was made supremely happy by employing himself in making grotesque garden-seats for the grounds out of twisted sticks, which he whittled into wooden serpents with staring eyes, little imps with long ears, and repulsive demons with cloven feet. The faculty of constructiveness, as perverted among the insane, affords a field for a most interesting psychological study.

20. A gymnasium should be provided.

21. One of the large parlours or public rooms should be so arranged that it can be used as a school in the evenings.

22. All the special arrangements of rooms, window-shutters, strong-rooms, padded-rooms, &c., should be as little prominent and offensive as possible; and, above all, they should not be suggestive of what they are intended to prevent. I don't advocate *insecure* arrangements, however. Many special contrivances are capable of being masked. Strong-rooms, strong window-shutters, and others can be altered in effect when not needed.

23. A patient labouring under an acute attack of insanity should have an extra abundance of—*a.* fresh air; *b.* water for bathing; *c.* floor-space in his parlour, and room for a good walk in a corridor of some sort; and, *d.* he should not be along with too many others.

24. Many asylum patients are in such a condition that they need most what is understood as ordinary "nursing;" and for this female nurses are, on the whole, the best. For the greater number of this class an "infirmity ward" is the best provision, where all the arrangements are somewhat like those of an ordinary hospital.

25. All the parlours and some of the bedrooms should have open fireplaces. If other heating is required, it should be done on scientific principles by steam-pipes, which will be also needed to keep the frost out of the glass corridors, and away from the plants in the "winter-garden."

26. Ventilation should be provided for by: *a.* Open windows. *b.* Open fireplaces. *c.* Gas-burners having openings over them communicating with flues, to remove the foul air and create a movement in the upper stratum of air in the room. *d.* External openings in outer and partition walls, opposite the ends of the joists under each floor, communicating with the open spaces between the joists, and those again with openings round the cornices, so that, which ever way the wind blows, there shall be a current of fresh air crossing the whole building among the joists. For very cold climates the external openings may be made to shut during the great frosts. *e.* Archimedean screw exhausters in all the roofs and tops of the glass cupolas in the one-story buildings. *f.* Special exhausting flues in three-story-block for "acute" and admission cases, communicating with each room at one end, and with a large chimney at the other.

27. All locks of doors to have handles to open them, and ordinary spring latches, but capable of being locked and double-locked by a common key.

28. Double roofs, with a non-conducting medium between, to be everywhere used.

29. The walls of certain of the bedrooms should be made double, with cotton-waste or something of that sort between, to prevent the sounds from noisy patients disturbing and keeping awake those near them.

30. A special wing should be thrown out, containing rooms for a few patients who would disturb the others and the general quiet of the house at night.

31. All windows, except those of a few of the bedrooms, should be of three-eighths-inch plate-glass, four squares to a window in second and third stories, and two squares to a window on the ground floor.

32. All the day-room windows should reach to within two feet of the floor, and some of those on the ground should go down to the floor and open as French windows do.

33. Provision should be made for training attendants systematically to their work. They should begin by being taught to nurse the sick, this being an essential part of their work, and tending to produce at once that humanised, softened, helpful frame of mind, with a tendency to regard the patient as an object of sympathy, study, and help, which is of the last importance in a good attendant. The attendant, after being three months in the infirmary ward, should then be sent to the ward for acute cases, and should at first have the charge of only one case, for whom he is to be held strictly responsible. Therefore rooms must be provided for two "probationer" attendants.

34. Nearly all bedrooms should have shutters, with means of ventilation at top and bottom, opposite the openings of windows in summer.

35. It must be recognised as a fact, that the general public have ideas of repulsion and horror of asylums for the insane, those ideas finding their acme in nervous persons of unstable mental equilibrium, who have an undercurrent of consciousness that they may become insane some day. There are many causes for those ideas: *e.g.*, the undoubtedly repulsive nature of some forms of insanity; the terrible pictures of it drawn by the classical and modern dramatists and artists; the inhumane treatment of former times; but, in addition to these, the prison-like character of some asylums, outside and in, has increased this feeling. It should, therefore, be a pressing duty of every modern asylum architect and physician to counteract this prejudice by making asylum buildings bright, airy, and broken-up looking. A terrible amount of mental suffering might be avoided were asylums regarded as ordinary hospitals are. To run even to extremes, with this view, may have a good effect in the end.

36. For practical purposes, I think the best classification of one hundred patients into wards is the following. The numbers are those which I have ascertained to exist in this asylum for each hundred.

1. Acutely excited, the very demented and dirty in habits	16
2. Recent admissions, improving cases, with some mildly demented, but needing much supervision	20
3. Sick, infirm, paralyzed, epileptics taking very frequent fits, bed-ridden, very old, and recently admitted cases in a very weak state; all requiring "nursing"	21
4. Convalescent, mildly demented, harmless, and agreeable delusional cases	18
5. Permanent inmates who are delusional, mildly demented, or slightly excited; all useful workers	25
	100

37. For each of these classes I would have a ward in the form of a distinct block of buildings, of special construction and arrangement, except that class 1 would occupy the ground floor, and class 2 the first storey, of the block A, B, and C (in plan), next the medical officers' quarters. The others I should connect to the centre, and to each other, by glass-covered winter-garden passages of different lengths, except class 5.

38. The advantages of such an arrangement seem to me to be : *a.* That it best fulfils the principle I have laid down, of making special structural and other arrangements to suit persons in different states of mind. *b.* That while doing so it gives sufficient concentration for administrative, medical, and daily working arrangements. *c.* That there is apt to be a great *esprit de corps*, and also a healthy rivalry, among the chief attendants when they have a "house" to themselves, under their special charge. *d.* That it gives more cheerful and homelike, better-lighted, and better-ventilated rooms. *e.* That thereby the asylum is less "institution" like, and more homelike, its inner life less formal and restrictive, through being more varied and natural.

39. The proportion of single bedrooms to associated dormitories has hitherto varied much in different asylums, according to the social classes of the patients, and the ideas prevalent on the subject in different countries. In America, I am aware, the principle and practice have hitherto been strongly in favour of nearly all the sleeping accommodation being in the form of single bedrooms. I am myself greatly in favour of a considerable proportion of associated dormitories, because I think they have certain clear advantages, *e.g.* : *a.* There is better supervision of the patients in them. *b.* There is less risk of suicide. *c.* After a little, many patients like it better. *d.* It checks bad habits at night. *e.* Patients in dormitories exercise much more self-control, as regards making noises, &c. The public opinion of the room is brought to bear on them. If our Scotch plan of making most of the attendants sleep in them with the patients is adopted, most of those advantages are increased. Acting on those views, I have introduced some dormitories, suitably furnished and fitted up for the highest class of patients, in the "East House" at Morningside, where none had previously existed, with very good results. I think the proportion I have provided in the plan, of forty per cent. of single bedrooms, is ample in any country. It is more than is needed here.

40. A dormitory for very suicidal patients, with a fireplace in it, where an attendant can sit up all night, and one or two single rooms opening into it for patients who may be very restless or dangerous, is the very best plan yet adopted for preventing suicides during the night. Every asylum should have such an arrangement, though in an institution for two hundred, it need not be always in active use.

41. Every ward and block of the institution should be connected to the porter's room, and his room to the physician-superintendent's residence, by electric bells and telephones; while the wards for the acute cases (A), for the sick (E), and for the convalescent (C), in

each department should be connected, in the same way, to the chief attendant's room in the admission ward (B). The porter's room being just under the assistant medical officer's room, he can at once communicate any message to that gentleman. We have had telephones in use here for more than a year, and find them invaluable.

42. Every arrangement in an asylum should combine the greatest amount of simplicity with the greatest amount of strength and durability and good workmanship. Especially does this apply to all the plumber and engineer work, to the water-closets, door-locks, hinges, &c. We use here a much simplified closet, on the "Jennings" principle, which works admirably, and almost never goes wrong.

43. It is not my intention to enter here systematically into asylum management, except to say that the management of an asylum is necessarily much affected by its construction. Without saying that an institution badly built and arranged cannot be well managed, yet I do say that a homelike, cheerful, broken-up asylum is far more apt to be managed on principles that are pleasant to its patients. I have had experience of this. I have seen the mere alteration and reconstruction and re-decoration of a ward produce a revolution in its management, even with the very same attendants in charge of it all the time.

44. A certain number of cottages for the married attendants and officials (say four or five for an asylum of this size), should be built on the outskirts of the property; and each cottage should have one large spare room where one or two patients can be "boarded out," living with and forming a part of the family, who, in money and the patients' labour, receive remuneration and help sufficient to make it an object to wish to have such patients; thus adopting, to this small extent, the true "Gheel principle."

Description of the various parts of the Asylum.—I shall not attempt a technical or even a minute description of the asylum whose plans are annexed. I shall merely state the principles on which each part is constructed to adapt it for the purposes it is intended to serve, with only enough reference to details to accomplish this object, and to enable the reader to understand the plans. These plans were drawn out in line by me, and were then put in their present shape by Mr. W. Lambie Moffatt, of Edinburgh, of Messrs. Moffatt and Aitken, the present architect of the Royal Edinburgh Asylum, who has also been the architect of several asylums both in Scotland and England. To him I am indebted for many valuable suggestions as to details and technical matters.

The Block containing the two Wards for, first, the acute cases; second, the admission improving cases; and, third, the sleeping accommodation in the third storey (A, B, and C).

These form one block of building of three stories. It is placed next the central administration block, because the patients in those wards need medical attention, care, and study, far more than any other class. They need more supervision too; and their attendants

require to be supervised and kept far more on the alert than those of any other class in the asylum. The objections to going far to meals, &c., apply to this class, rather than to any other. And, as a certain number of patients in the acute ward cannot go to a common dining-room without disturbing its quiet and good order, it is desirable that one of its parlours that can be used as a dining-room should be near the kitchen (A 2).

The block is turned at an angle of sixty-seven and a half degrees to the line of the administration, dining-room, kitchen, &c. This may seem a preposterous thing from an architectural point of view; but my reasons for so placing it were, 1st, to give it an uninterrupted outlook from the chief day-room and corridor windows. 2nd, to avoid looking down at the great block of building forming the kitchen, scullery, and workshops. In these respects, both cheerfulness and the feeling of privacy are secured, and a greater *individualization* of each ward as a distinct entity, and not being merely a bit of a large institution.

The Ward for the acute cases, and some of the very demented, who are dirty or slovenly—ground floor; for sixteen (A).

This consists of two parlours (2 and 8), each with distinctive features, and a corridor between. In this way the patients for whom the ward is intended can be classified and segregated according to their condition at the time, and one or two acutely maniacal cases could be treated without necessarily disturbing all the others. The parlour (2) is within eighty feet of the dining-room, and eighty-five feet of the kitchen, and is intended also as the dining-room of those patients who cannot go to the central great dining-room. The other parlour (8) is very well lighted, cheerful, and with two aspects. It is intended for the more quiet cases. The corridor is large enough to sit in, as well as afford a good long promenade for an excited patient, and has two recesses (4 and 6) for seats for about four or five patients. There should usually be four or five patients in one parlour (2), seven or eight in the other (8), and four or five in the corridor. Three attendants should take charge of the ward at almost any time, and two (one in each parlour) when there were no specially excited cases in it. Of course, four or five might be needed at times, when individual cases needed special attendants.

Each patient has a hundred and twenty-five superficial feet of day-room floor-space in this ward. This is the largest allowance in any part of the asylum, as such patients need it most. Space tends to quietude, and freedom from irritation and contact with the other patients.

The other accommodations provided by the ward are seven bedrooms (5) for the more quiet patients,—one being for an attendant,—and an annex thrown back at a right angle, containing a back staircase (9) and three bedrooms (10) for noisy or very violent patients; this annex being shut off from the rest of the ward by double doors and

thick walls for preventing the noise made by patients in those rooms disturbing the others. The aspect of those rooms is away from that of the others, for the same reason.

One of those rooms should be a "padded room," lined for five feet above the floor and over the floor itself with strong shoe-sole leather, cut in large pieces, five feet by two and a half-feet, each piece being sewed to the next at the edges, and then well screwed to the wall on two folds of thick felt. Above this, the room should be lined with wood. The surface of the leather should then be neatly stencilled, and coated with four coats of the best varnish. It is then soft, impervious to urine, strong, and makes a pleasant-looking room, just like an old library hung with stamped leather. In this way the forbidding features of an ordinary "padded room" on the patient's mind are avoided. There should be a gas-light in the centre of the room, or above the door, protected by a light wire grating; and a small inspection-hole in the door.

The other two rooms (as also all the rooms in this annex in the second and third stories) should be either finished in smooth strong cement, well painted, and tastefully stencilled in bright colours, with close narrow-tongued, well-seasoned, hard-wood floors, well varnished; or the walls for six feet high can be framed and panelled in well-seasoned oak, this being screwed on some soft material like roofing-felt, to deaden the sound if a patient tries to drum on it with his fists. We have four such rooms in the "East House," Morningside, that are as "strong rooms" as are ever required, and yet look quite like an old English oak room. If a patient is maniacal, the furniture is taken out: when he gets more quiet, it is put back; and with this, and a bright carpet-rug on the floor, such a room looks quite attractive—a great matter to attain for the most special and asylum-like part of such an institution.

All the doors, shutters, hinges, woodwork, &c., of these nine rooms in the three floors of this annex, should be made very strong and substantial. The short corridor to the rooms (11) opens by a door into the glass corridor leading to the convalescent-block. This might be convenient for taking an excited patient through for exercise in the "winter-garden" in bad weather, and in other ways.

There is a lavatory and bath-room (12), with a bath and shower for medical and special purposes; and opening out of this into a projecting tower (7) on the back of the building are the water-closets, slop-sinks, and, in the wards for men urinals. There are windows and extracting ventilators on each side of the tower on each storey; and the door opening from the lavatory to them should have a spring to keep it always shut, and should shut on an India-rubber tube, so that there shall be no chance of sewer-gas or bad smells from the closets entering the wards. The water-closet tower might easily be made a very ornamental feature of the building architecturally, and should be carried above the roof of the block.

The Ward for the newly-admitted cases, the moderately excitable, the improving, and a few chronic cases that need special attention or care; for twenty (B).

This ward is the same as the last in structure, being above it on the second floor, all the partition-walls being carried up. It is intended for twenty patients, who will thus each have one hundred superficial feet of day-room floor space. Such patients don't need so much space as those in the acute ward, though they need a good deal. It is intended that they all should go to the central dining-room to meals, with perhaps occasional exceptions in the case of temporarily excited patients, who would dine in the parlour (2) of the acute ward.

All the rooms, day-rooms and bedrooms, should be painted in most cheerful, tasteful colours, the furniture and fittings should be extra good, and the supervision should be very thorough. The head attendant should occupy one of the bedrooms in this ward, and the attendant in charge of it should be the best in the house. The "first impressions" of the newly-admitted patient should be pleasant. He should get the impression that every thing is well-ordered, homelike, and comfortable, and that great attention is paid to the study of his symptoms. There is nothing that takes off the irritation of a patient's forcible removal from home, like the conviction that he has come to a hospital where he is to be medically examined and treated, and where every thing is done that is possible for him. A physician should spend at least the first half-hour he is in the asylum with him in the ward, examining him, and taking notes as to his symptoms. Such an examination interests and amuses him, distracts his mind from the unpleasantness of being taken from home, and exalts his self-importance; while, to the physician, the knowledge of the case thus acquired is simply invaluable, and is never forgotten. The patient and doctor often in that way learn to understand each other, and this understanding is all-important. This ward is in immediate contiguity with the billiard and amusement-room; and one of its parlours should be fitted up, and used as the general library.

The Sleeping Accommodation for some of the patients and also some of the attendants from both the admission and the acute ward, and the suicidal dormitory (C).

This is on the third storey; and, if economy or architecture demands, it can be constructed with a French roof (double, to protect from the heat of summer and the cold of winter). It consists of dormitories (2, 5, 8, 10, 11) and single rooms (4, 9, 13), more than sufficient for the population, sane and insane, of the two wards below it that cannot be accommodated in the twenty single sleeping-rooms in those wards. If those wards were fully occupied, there would be nineteen patients and four or more attendants that would sleep there. The night attendants could have rooms up here too. It is intended that the rooms in

this storey should be occupied only during the night ; the patients and their attendants going down to one or other of the two wards below when they have washed and dressed in the morning.

Seven patients and one attendant could sleep in the dormitory marked 2, five and one attendant in 8, one in 5, one in each of the three marked 9, while room 10 could be used as a special suicidal dormitory, with 11 occupied by a patient both suicidal and dangerous, or very restless. A large lavatory, 6, is provided here. Rooms 13 are for noisy or restless patients.

In most of the modern English asylums there are upper stories used in this way, for sleeping rooms only, and it works well. I have myself had experience of it, and like it. Much extra accommodation is thus got at small cost. If preferred, wooden screens four or five or six feet high could be erected between the beds, as in some of the English public schools, thus securing more privacy, and not interfering with the other good effects of a dormitory, or with the ventilation of the room.

The Ward for convalescents and also some chronic cases whose mental state is liable to change ; for eighteen (D).

This ward consists of a one-storey block, of simple construction, connected to the dining-room by a glass-covered way that takes a circular course up to the acute ward A (20), ten feet wide, and four hundred and eighty feet long,—a part of the winter-garden. The block is so placed, that it interferes with the views from the admission and acute wards (A and B) as little as possible ; and this is one of the objects of its being one-storied. It is an oblong building seventy-five feet by fifty, with projections (3, 7, 9, 18) at the corners which are used for water-closets and lavatories at the back (9 and 18), and as pleasant bow-windows off the two parlours in front (3 and 7). It has a verandah round three sides of it (19).

It consists of a corridor ten feet wide (1) down the middle, off which open all the chief rooms. This corridor is well lighted and ventilated from the roof all along its length, and has two recesses with seats, and two fireplaces. There are two parlours (4 and 6), the one large enough for a billiard-table (6), and used as the smoking-room in the case of the male ward, and as a work-room in the case of the female ward ; while the other (4) is to be used as a reading and non-smoking room. These two rooms should be "got up" quite differently from each other, and also from the corridor. It is difficult often to get architects and painters to take the trouble to exert their ingenuity to get varied effects in the different rooms of an asylum ; but this is very important, and should be done. It costs little more than unbroken monotony of colour and effect. Both parlours open into the verandahs, and double doors should be provided for winter.

All the sleeping accommodation is in the form of dormitories, which may have low wooden screens between each bed (5, 8, 13, 16) ;

and each patient is allowed fifty-six superficial feet of day-room floor space, and seven hundred and forty-seven cubic feet of air by night. Stores are provided (12 and 15), and also attendants' rooms (11 and 15). It will be at once seen that the whole effect of this building, inside and out, is different from the acute and admission block, and the *feeling* of living in it quite different. It is more simple, home-like, and, being all on the ground-floor, more cottage-like, and less formal and hospital-like. We have at this asylum two wards built somewhat on this principle, that work admirably.

All the patients, of course, come to the dining-room for their meals, and the distance is not nearly so great as from some of the rooms to the *tables d'hôte* of some hotels. They are all expected to employ themselves in some way. The unity of administration is kept up by having this ward connected to the administrative block by telephones. The patients in this department may be regarded as coming after those in the sick-ward and before those in the cottage, as regards the necessity for frequent medical supervision and attention. They come fourth of the five classes in this respect.

The Ward for the sick, paralysed, very weak, very old, bedridden, blind, the recent cases especially of melancholia that are very weak, and the class of cases generally that need nursing; for twenty-one (E).

A mere glance at the list of the different classes of cases that are to inhabit this ward shows that we must provide suitable special accommodation for them, that this accommodation must be all on the ground-floor, that it had better be apart from the rest of the asylum, and yet not too far from either the central kitchen or the medical officers' quarters. The patients cannot go to the central dining-room for their meals, so a dining-room must be provided (5). A certain amount of minor cooking, and keeping beef-tea, &c., hot, must be done too, therefore it must contain a small kitchen. As a man and his wife are intended to have the chief charge of this ward, a kitchen adds much to the element of domesticity. Among the patients in the sick-ward of an asylum, some had better sleep in dormitories, others in single rooms. Some of the former require to be in bed all day, others only a part of it, and others can be up all day. The greatest variety, too, exists among the patients who need to sleep in single rooms. There is an enormous difference between the general paralytic in the end of the second stage of his disease, who is restless and noisy at night, though so weak that he stumbles and falls about his room, very dirty in his habits, rubbing his faeces over the walls of his room, unable to feed or clean or dress himself, and the quiet, slightly demented, consumptive or hemiplegic patient, who needs to be in bed all day, but whose cough or helplessness would disturb the others in a dormitory. Both of those need single bedrooms; but it would be undesirable, if it could be avoided, to place them next each

other. I have never yet seen a sick ward whose construction and arrangements seemed to me so varied as the requirements of its patients.

The building I have planned is a separate one-story block (E) three hundred and forty feet from the central kitchen, connected by a prolongation of the winter garden corridor (17). It consists of a central corridor (1), roof-lighted, ten feet wide, into which open on the back of the building, on entering it from the corridor (H), two store-rooms (2 and 3), one for brushes, pails, &c., and the other for linen and clothes. Then comes the kitchen, with a small cooking-range and the means of washing and storing dishes. If the dinners are cooled in coming along the corridor from the great kitchen, they can be easily warmed here; and as the serving of the meals to so many helpless people takes a considerable time, from many of them having to be fed, the meals of those last served can be kept hot. Here the wife of the attendant in charge presides; she is the "housewife," and makes the breakfasts and teas, assisted by a quiet female patient; the dinners coming from the central kitchen.

Opening out of the kitchen, and occupying almost the centre of the building, is the dining-room (5), with sufficient space, tables and chairs, to dine fourteen, or two-thirds of the patients, in the ward. I find that proportion sufficient here. The others are in bed, or too helpless to come to table. The dining-room walls should be carried up five feet above the height of the ordinary walls of the sick-room, to form a central hall, and to give ventilation; and it should have a large cupola-light with a ventilator in the centre of the ceiling, which should be more or less dome-shaped. In that way all the "dinner smell" is carried up and away, without permeating the rest of the ward.

Opening out of the dining-room, there are two small dormitories for three patients each (16), which are to be occupied by quiet bedridden people. Their meals can be served very conveniently from one of the dining-room tables.

From the back of the dining-room opens a short corridor with double-glass door at the end (for taking bodies to the dead-house) (10), which is the centre of a projecting annex, that contains four single bedrooms for patients who are noisy at night, an attendant's (probationer) room (7), and a small bath-room and water-closet for the helpless, dirty, and paralysed, who may occupy those four rooms (9). Those rooms are so placed that noise in them is not heard by many of the patients in the rest of the ward. This annex should be shut off by thick walls and double doors from the rest of the ward; and every room should be well heated by steam-pipes, and not have open fire-places, as such patients sometimes throw off their bedding, and roll about their rooms naked.

On the other, or front side of the corridor, there are, first, three single bedrooms (10) with a sunny aspect, for quiet, cleanly, more

sensible patients, suffering from bodily ailments, or for newly-admitted patients, who may be very weak, and need much nursing. Those rooms are so convenient to the kitchen (14), that meals can be served in them very easily. Next to them, on the same side of the corridor, there is a large dormitory-dayroom for patients who may keep their beds part of the day. It has a fireplace and bow-window; one corner of the room being kept free of beds, and used as a place where patients can sit when they get up. The eight beds are placed round the rest of the room. Such a room, cheerfully painted and well-furnished, I look on as a most necessary part of any asylum infirmary-ward.

Next it, still on the same side of the corridor, is the room for the married couple who have charge of the ward (12). Still farther along is the day-room proper, for those patients who are able to be up all day. It has two good exposures, a bow-window, and opens into the corridor, and also into the verandah (16).

The larger bath-room, and lavatories and water-closets for general use (14 and 15), project out from the building, have cross ventilation, and are shut off by double doors from the corridor.

Over three thousand cubic feet of air-space is allowed in this ward per patient in day and night rooms together. This large amount is needed for this class of patients.

Every thing in the sick-ward should be bright, airy, and cheerful. No paper should be used on the walls; all the colour being got by paint, which should have a final coat of fine varnish. Every room, almost, should have a different tint of wall. The floors should all be hard wood, or pitch-pine well-seasoned, and sawn into narrow boards, and tongued.

The Detached House for chronic, useful, slightly enfeebled, and more slightly-crazed patients, none of whom require active medical treatment or constant supervision; for twenty-five (F).

This house may be placed in any convenient situation; but probably the best place for it would be somewhere near its position in the block plan, as being least obstructive of the views from the rest of the building. It is a two-storey house, simple and home-like in character, and could be built of brick, stone, or wood. If any moderate extensions of the asylums were needed through the filling up of the other wards with quiet incurable cases, a number of such houses could be built in different parts of the grounds. It is intended that the patients from this house should come to their meals in the central dining-room; and in bad weather they could come so far along the glass corridor to the convalescent ward. This should be kept in mind in fixing the position of the house.

On the ground-floor there are two day-rooms (1 and 4) of different forms and aspects, that should be painted and finished differently, to give variety. There is a front door (2) with outer porch and hall

(3). to which runs at a right angle a passage leading to five single bedrooms (one being for an attendant), and a store-room (8). At the end of the main hall, opposite the front door, is the stair, leading to the second storey (6); a passage by the side of this stair, and going under the first landing, leads to bath, lavatory and water-closets, which project so as to secure cross-ventilation. Behind one day-room (4) there is a small room (5) for a combined kitchen, scullery, and attendant's dining-room.

On the second floor the same rooms exist; but those over the parlours are dormitories, and an attendant's room is taken over the front hall, opening into both dormitories. Two attendants are sufficient for twenty-five of this class of patients, and even one efficient, experienced attendant might take charge of them. A house of this kind for men should have a man and his wife in charge as attendants. This works well in such detached houses at the Wakefield, Cupar, Cheadle, and other asylums in England.

Each patient has forty-two superficial feet of day-room floor-space, and nine hundred cubic feet of air-space in the dormitories, and twelve hundred feet in the single bedrooms. This is a very great allowance for such a class of patients, who ought to be much out in the farm, winter garden, or workshops; and, if economy were much of an object in building an asylum, from thirty to thirty-five patients might be put into such a house, or it might be made of less size for the twenty-five.

It may strike some one, why so many single bedrooms should be provided in this house, and none in the convalescent block. The reason I have done so is that I think it is better, on medical grounds, for the convalescent patients to sleep in small dormitories, while, living in such a house as this, there would be many chronic cases whose only home it is for life; and I would let a few such, who were specially useful to the place, have single bedrooms as a reward and encouragement; and in those rooms I should allow such patients to collect their *Lares* and *Penates*—homelike trifles or foolish accumulations, as the case might be—at all events, I should let such people have in a very full degree the sweet sense of possession of a room and all that it contained.

All the patients in this house would be in good bodily health, and so would be able to go to meals, prayers, chapel, and workshops. In fine weather they would probably all go straight across to the workshops and dining-rooms, rather than so far by the covered corridors. I have had experience of such houses for men and women, and I know they work well if the patients are properly selected.

The Administration Block (G).

This is not very special in its character. It simply consists of a large house of four stories, with rooms (as marked on plan), suitable for porter, visitors, assistant medical officer, matron, household and kitchen servants' bedrooms. As the architectural centre of the build-

ing, it is better to have it of four stories ; and an able architect could here exert his ingenuity and taste to the utmost.

The Glass Corridors of Communication and Winter Gardens (H).

At the front door in the administration block begins the corridor (H), that leads everywhere to the different parts of the asylum, except the detached houses. The hall should be spacious, wide, and inviting. It leads straight to the front of the dining-room, and is formed chiefly of glass from where it leaves the back of the administration block, throughout its length and ramifications. It is to be filled with plants and flowers ; and the colours of its timbers, &c., are to be bright and harmonious. On each side, to fill up the lower part of the spaces between the dining-room and administration block, there are two conservatories (H.) Thus a patient, or his relative coming to see him, as he passes for the first time along the corridors to the wards, sees nothing gloomy or prison-like, but, on the contrary, has a distinct feeling of cheerful brightness. I cannot sufficiently reiterate, that such a passage of communication to the asylum has a good effect psychologically on the patient. The whole system of combined glass corridors of communication, and winter garden, I consider one of the most important and novel in this asylum plan. It combines utility and beauty in the highest degree.

The Dining-Room (I).

This is a large room, fifty-two feet long by thirty wide, and twenty in height. It is peculiar in its construction. It has really two walls ; the outer, of glass, being the wall of the glass corridor (H), while its inner wall is constructed of brick piers to carry the roof, with the spaces between partly formed of lath and plaster partitions, and partly of large glass doors or glass screens. The impression produced by such a room is that of being in an arcade with a conservatory outside it.

There are two chief entrances for patients : one near the front, for those from the convalescent and detached houses ; and one near the other end, for those from the admission and acute wards. A dining-room of this construction, tastefully coloured, is most cheerful and very comfortable both in summer and winter. The layer of slightly warmed air that really forms its wall is about the very best material for that purpose. We have two such rooms here in the Royal Edinburgh Asylum, and they are admitted, by all who have seen them in use, to be perhaps the most beautiful, cheerful, comfortable, and unique dining-rooms in any British asylum.

The Amusement-Room and Billiard-Rooms (over I).

These occupy the floor above the dining-room, and together are the same in size, shape, and construction. Their walls are formed in the same way as those in the dining-room, the glass corridor (H) being

here carried up for two stories. This is the only place where this corridor exceeds ten feet high. It can be here made forty feet high, either in wood or iron, with the brick piers of the dining-room and drawing-room walls as the solid basis of support.

The amusement and combined billiard and news-rooms should have a different character, and should open *en suite* for specially festive occasions by large sliding double doors. There should be a stage at one end of the amusement-room, for the performers in concerts, plays, &c. The billiard-room should not have so much side-light, and more roof-light. It should be used as a general news and reading-room, with newspapers, maps, books of reference, atlases, dictionaries, &c., lying about.

The Kitchen and Scullery (K and L).

The kitchen is an oblong room lighted from the walls above the glass corridor on each side, and especially from the roof, thirty feet by twenty-eight by twenty-five in height, with all the steam cooking boilers together in the centre of the room, and a large cooking-range next the scullery. The walls should be lined with white glazed tiles for at least six feet high, and above that should be finished in smooth cement. There are two large service openings from the kitchen into the dining-room.

The scullery is a room thirty feet by twenty, properly fitted up with sinks, plate-racks, presses, &c.

The Kitchen Court (M), Steward's Department (N), Boilers, Coal-House, Bake-House, Surgery, &c. (O).

Beyond the scullery the glass winter garden corridor is carried across at a right angle to that part of it which has run alongside of the kitchen and scullery. In this way free communication is got across from one side of the house to the other; *e.g.*, for the linen to be taken from the male wards, to and from the laundry (U); for the men going to the bath-house (T); for the women to take articles to be repaired in the workshops (P H). There is a large kitchen court (M) beyond the corridor, into which the road for supplies, &c. (V), enters. On one side of this court is a block of building (N), containing the steward's and general store-room, his office, stores for potatoes, coals, beer, &c. The glass corridor thus runs angularly round the corner of this, and then in a straight course parallel to the entrance road up to sick-ward (E). Of course the steward's stores and office open into it, as well as into the kitchen court. It gives a unity to the whole administration of the institution.

On the other side of the court is a block of building containing larder, milk and flour store, bakery, surgery, and surgical-instrument room. One set of those open into the court; the other, into the corridor on the outside of the block.

The Workshops (P).

These are all made easily accessible by the glass corridor (H), and consist of engineer's, plumber's, carpenter's and cabinet-maker's, upholsterer's, shoemaker's, and tailor's work-rooms—all well lighted from walls and roofs, and cheerful, healthy, well-ventilated rooms, whose inside walls are all done in bright, cheerful colours. The number of patients in them at different times will vary, but together they should be capable of accommodating twenty men at work.

The Gymnasium, and the Workroom for the idlers, loafers, and amateur artificers, who make crazy, useless articles (R).

This forms a block on the other side of the glass corridor from the workshops. The gymnasium is a lofty, airy room, with most of the appliances used in an ordinary gymnasium, except that the principle of safety is more thought of.

The idlers' and amateurs' workshop I look on as a great institution. Many people about an asylum will go there most usefully to themselves, who won't go into the regular shops; and there are others who would go to the latter, but would merely hinder the real useful workers.

The Dead-House, Post-mortem Room, Microscope Room, small Chemical Laboratory, and Pathological Museum on the second story (S).

This forms a block by itself; the dead-house opening into the road, and the necroscope room opening into the corridor (H). I have placed it in this position for the convenience of the medical officers. In many respects it would be better to have a dead-house a detached building near the outer gate. But it is apt to cool pathological research, for the medical officer to have to walk from such a building to his rooms at two o'clock of a winter morning.

The Museum.

This is a well-lighted, oblong room over the microscopic and chemical rooms, thirty feet by fifteen, lighted chiefly from the roof and suitably fitted up.

The mere fact of having rooms there, suitable and ready with all the appliances, stimulates and encourages the medical officers (or outsiders with pathological tastes) to original investigation and research.

Forty feet beyond this block the corridor leads to, and ends in, the male sick ward (E).

The Bath-house (T).

This consists of an ordinary bath-room with movable screens between each bath, a swimming-bath, a Turkish bath, a complete set of medical baths, and a dressing-room. It is a most important adjunct to an asylum, for medical and hygienic reasons.

The Laundry (U).

This enters from the glass corridor, on the female side, by a wide entrance. It consists of receiving and distributing rooms, wash-house, laundry, drying-closet, and engine-house for a small steam-engine to work the machines.

The Road of Entrance (V),

for the delivery of all stores and for all non-medical business traffic.

The Chapel (W).

This should be built to contain the whole number of patients in case of any future enlargements. It can be connected, if desired, by an offshoot at a right angle of the glass winter-garden corridor, connecting the convalescent block to the centre. The best position is that shown on the block plan, flanking the physician's house. Standing thus apart, the patients have the feeling of "going to church" on Sundays.

The Physician-Superintendent's House (Y).

This should be a quite separate building, of villa character, in its own enclosed garden. It can be connected by an extension of the glass corridor similar to that leading to the chapel, if desired, or if the climate demands such an arrangement.

In conclusion, this asylum may be called a "Hospital Home" for the insane, planned in its various parts on the principle of adaptation of each house to the mental states of its inhabitants. If, in practice, I have failed thoroughly to harmonise construction with all the varied phases and needs of mind diseased, I am certain that the principle I have adopted is the right one. I have had in view cure more than care in devising these plans. I think this Hospital-Home would be found suitable for the treatment of an unusually large number of recent cases, in proportion to the whole number of the inmates. One hundred patients a year might be sent to it, provided the quiet and improved cases, as well as the recovered, were discharged. The theory on which it is constructed would be quite upset, were it to become chiefly a comfortable residence for incurable cases. And while I cannot point to the success or otherwise of an institution where the principles of adaptive construction I have endeavoured to lay down have been fully carried out, because in my opinion none such exists, yet I am able to refer to five years' experience of increasing quietude and contentment, diminished excitement and liability to accidents, a smaller death-rate, and a higher percentage of recovery, among my patients here, since extensive additions and reconstructions in an old building have been carried out under my own eye, on these principles.

THE VARIOUS PORTIONS OF THE ASYLUM.

(See accompanying plans.)

THE SCALE SHOWS THE SIZES OF THE VARIOUS ROOMS.

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|---|--|---|---------------------------------|---|------------|---|------------|---|------------------------|---|---------------|---|---|
| <p>A. Ward for acute cases, &c.
 B. Ward for admission-cases, &c.
 C. Sleeping-accommodation for some of the above two classes and their attendants. A suicidal dormitory, &c., in the third story.
 D. Block for convalescents. Connected by glass corridor.
 E. Sick ward. Connected by glass corridor.
 F. House for quiet chronic workers.
 G. Administration block.
 H. Glass corridor of general communication, also used as winter-garden, promenade, smoking-corridor, exercise-place for excited cases, &c.
 I. Common dining-room, with amusement-room and billiard-room over it, all with conservatory walls.
 K. Kitchen.
 L. Scullery.
 M. Kitchen court.
 N. Steward's department, stores, &c.
 O. Surgery, &c.
 P. Workshops.
 R. Gymnasium and idlers' workshop.
 S. Dead-house, post-mortem room, microscopic and chemical rooms, and pathological museum.
 T. Bath-house.
 U. Laundry.
 V. Road of entrance for stores, &c.
 W. Chapel.
 Y. Physician-Superintendent's residence.</p> | <table border="0"> <tr> <td style="font-size: 3em; vertical-align: middle;">}</td> <td style="vertical-align: middle;">These in one three-story block.</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">}</td> <td style="vertical-align: middle;">One story.</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">}</td> <td style="vertical-align: middle;">One story.</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">}</td> <td style="vertical-align: middle;">Detached; two stories.</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">}</td> <td style="vertical-align: middle;">Four stories.</td> </tr> <tr> <td style="font-size: 3em; vertical-align: middle;">}</td> <td style="vertical-align: middle;">Ten feet wide, by eight or ten feet high.</td> </tr> </table> | } | These in one three-story block. | } | One story. | } | One story. | } | Detached; two stories. | } | Four stories. | } | Ten feet wide, by eight or ten feet high. |
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