

The New Hospital at Ayr Asylum.⁽¹⁾—By C. C. EASTERBROOK, M.A., M.D., F.R.C.P.Ed., Medical Superintendent, District Asylum, Ayr, N.B.

THE main features of the hospital which has recently been added to Ayr Asylum are: (1) It is a substantial building, one-storeyed, after the cottage hospital type. (2) It has been specially designed for the accommodation of those insane patients who are more appropriately treated in a building of hospital character, and the design gives effect to certain principles which, in my opinion, should underlie the construction of a mental as distinguished from an ordinary hospital, specially the principle of facility of supervision of the patients by the staff both day and night, and the principle of the treatment of active insanity by rest in bed in the open air, isolation, and other special measures for the alleviation of mental and nervous disorders. (3) Owing to the way in which the design facilitates the work of the staff, the hospital is, for the class of patients it contains, managed with a relatively smaller staff than usual; and so, while an efficient instrument for its purpose, is distinctly economical to administrate. (4) Owing mainly to the elimination from the design of everything which was considered superfluous, and notwithstanding the fact that the cottage-hospital type of structure is relatively expensive to build, the hospital at Ayr Asylum has cost, for total construction and fittings, £100 per bed, which is considerably less than the cost per bed of asylum hospitals hitherto. Efficiency for its purpose, low cost of original construction, and permanent saving in future expenditure on upkeep and administration, seem cogent reasons at this time, when the public press is constantly harping on the cost of modern asylums and the ever-increasing burden of the lunacy of the country, for giving a description of this latest addition to Ayr Asylum. Before doing so, however, I shall describe the way in which the hospital scheme was taken up and carried through by the Ayr Lunacy District Board, as this undoubtedly had a distinct bearing on the ultimate cost to the ratepayers of Ayrshire.

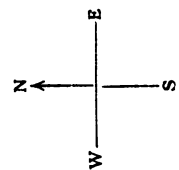
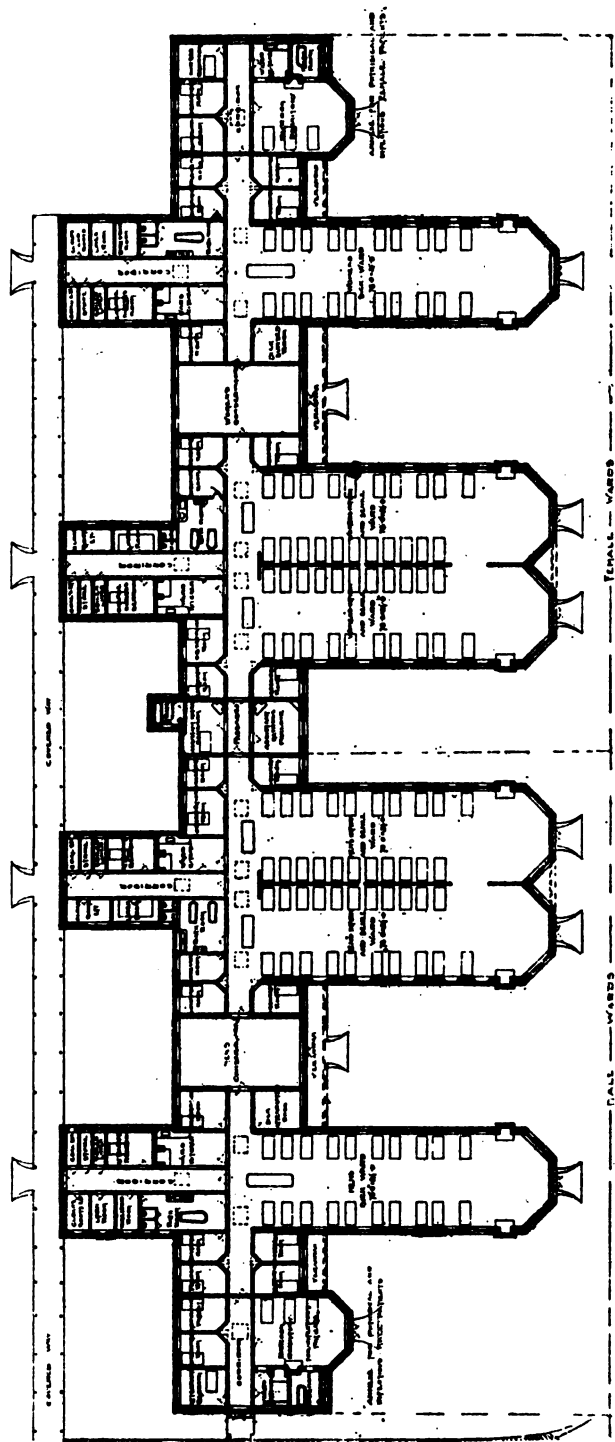
History of hospital scheme.—The Ayr District Asylum for the rate-paid lunacy of the county of Ayr was opened in 1869 with accommodation for 230 patients—115 of each sex. During the next thirty years the asylum population doubled itself, and

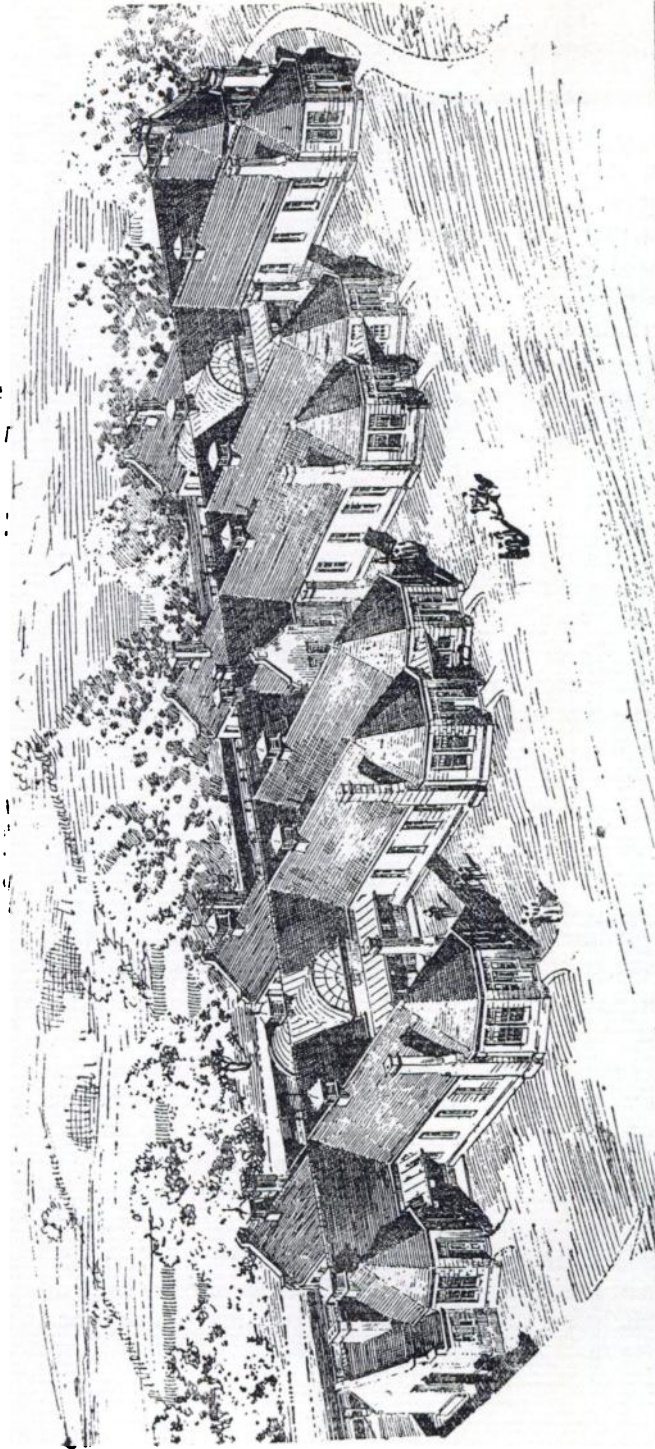
considerable additions were made to the accommodation. In 1902, when I was appointed to my present post, the population exceeded 500, and the overcrowding of the asylum had again become a pressing question. Further, owing to the large proportion of senile and debilitated patients admitted during recent years, to the increasing infirmity of many of the older residents, and to the introduction of the modern treatment of recent and curable insanity by approved hospital methods, the accommodation for patients requiring treatment in wards of hospital character was specially deficient. Several of the wards of the main asylum, which had originally been intended as day-rooms or parlours, were in use as sick wards, and this had greatly curtailed the day-room space and produced a considerable disparity between the day and the night accommodation of the institution. After considering various schemes and consulting the General Board of Lunacy for Scotland, the District Board decided that the only satisfactory way of remedying matters was to provide a properly-equipped separate hospital for the accommodation of all patients who would be more appropriately treated in such a building, the removal of these patients from the main asylum not only relieving its wards of the class of patients for which they were not suitably constructed, but also making it possible for the deficiency in day-room space to be rectified, and the proper balance between the day and night accommodation of the institution generally to be restored. Having decided on the hospital scheme, the District Board commissioned me to visit the hospitals of other Scottish asylums, so far as seemed advisable, for the garnering of ideas, and I take this further opportunity of thanking the physicians of the majority of the Scottish asylums which I visited for their kindly co-operation, courtesy, and hospitality. Having had several years' practical and intimate experience of the special requirements in hospitals for the insane, particularly at Morningside Asylum, which, with its large annual admission rate of 450 and more patients, and population of over 900 inmates, has a specially active hospital department, having thereby come to form definite ideas on the subject of the construction of a mental hospital, and having gained various hints from the experience of other physicians with whom I had compared notes, I considered at this point that it would be more satisfactory, in the long run, to make an actual plan of the

proposed new hospital at Ayr Asylum, showing not only the accommodation required, but also the most suitable arrangement of wards, observation bedrooms, verandahs, bath-rooms, and the like, than to follow the usual method of making out in writing a specification of the accommodation, and leaving its arrangement largely to the originality of competing architects, who could not be expected to realise all the details of internal disposition which would facilitate in the highest degree the working of a mental hospital, and who, further, are pardonably apt to subordinate the principle of utility to that of beauty and architectural effects. I therefore made a pen-and-ink outline drawing to scale of the ground-plan of the proposed hospital, showing the size and position of every ward, bedroom, bathroom, kitchen, and the like, and the position of doors, windows, fireplaces, baths, beds, etc., the actual drawing being reduced to simplicity by the aid of a large sheet of paper printed in one-eighth inch squares, each one-eighth of an inch being taken to represent one foot, and the walls being represented simply by lines, without allowance on the plan for their thickness. This plan was submitted to, and approved by, both the District Board and the General Board, and the District Board thereupon accepted it as the specification and plan of the accommodation of the proposed hospital, and ordered it to be lithographed, with a view to circulation among intending architects. The District Board then appointed an architect of eminence in his profession as assessor, or judge of the plans, selecting Mr. Sydney Mitchell, of Edinburgh, drew up the rules and conditions of competition—one of these being to the effect that the Board did not bind itself to necessarily adopt the plan placed first by the assessor—and by advertisement invited architects to compete for the work. To each architect who applied there were supplied a copy of the rules and conditions of competition, and a copy of the lithographed design as the specification of the accommodation and actual plan of the hospital, and it will thus be seen that the main problem of the competing architects was the treatment of the exterior of the building (which was to be in keeping with the other asylum buildings) and its disposition on the selected site, a piece of ground sloping towards the south and west. Twenty competitive plans (without distinguishing names, etc.) were sent in, and the assessor in his report to the

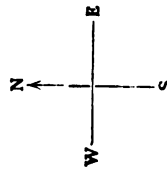
District Board made a short list of five, and placed three of these first, second, and third for the three prizes awarded. The District Board then appointed the measurers for the work, and instructed them to measure the five plans on the short list and to report thereon specially with a view to their estimated cost. After thoroughly considering these five plans and the assessor's and measurers' reports, the District Board finally selected, as all round the most suitable, economical and pleasing, the plan which had gained the third prize, namely, that of Mr. John B. Wilson, A.R.I.B.A., who was thus appointed architect of the hospital. His plans having been passed by the General Board, he prepared the various schedules for the work, advertised for contractors, and submitted the applications to the District Board, who made a selection of contractors who should receive schedules and be allowed to tender for the works, the architect being given power to add other contractors at his discretion in order to ensure competition where necessary. Owing to depression in trade at the time competition for the various contracts was keen, and the District Board with the aid of the architect in due course selected the list of contractors for the hospital, and the works were carried through in the usual way. The process of erection took eighteen months, and the hospital was finally opened and occupied in September, 1906.

Organisation of asylum.—The addition of the hospital raises the accommodation of the asylum to 650 beds (for patients) distributed as follows: main asylum 368 beds, two villas 104 beds, new hospital 154 beds, and isolation hospital 24 beds. The new hospital serves as (1) reception-house and sanatorium for all newly admitted patients, (2) sick room and infirmary for all inmates of the institution who are on the sick list or are through physical infirmity more or less bedridden or helpless, and (3) sanatorium for the isolation of patients with pulmonary tubercle and other infectious diseases. The isolation hospital, which is situated near the new hospital, and so will conveniently serve in the future as an overflow hospital if necessary, is intended for use during infectious outbreaks of more serious nature or extent than can safely be dealt with in the wards of the new hospital for the isolation of infectious cases. The two villas, one for men and one for women, serve as the convalescent homes of the institution for those convalescent and better-behaved patients who are both sufficiently able-bodied and





· AYR · DISTRICT · ASYLUM · NEW · HOSPITAL ·



sufficiently trustworthy to be given parole of the grounds by day, and not to require staff visitation by night. The main asylum serves as the asylum proper for the supervision, care, and treatment of patients who are more or less able-bodied but untrustworthy. All patients admitted to the asylum are therefore treated in the hospital to begin with, and remain there until they become suitable for the convalescent villas, or otherwise for the asylum proper, the aim being to treat all new patients amid surroundings which, so far as is possible, do not suggest the asylum environment, and are with certain modifications much the same as those of an ordinary hospital and convalescent home.

Site and general arrangement of hospital.—The hospital is situated on a piece of high ground to the east and north of the main asylum. It is itself sheltered from these colder quarters by a belt of wood and rising ground beyond, and it faces the south, the ground immediately in front of the building sloping gently towards the south and west, and being laid out as a garden and recreation space for the hospital patients. A reference to the accompanying sketches will show that the hospital is one-storeyed and built on the same level throughout, thus avoiding the risks of upper storeys and flights of stairs, facilitating the access from ward to ward and from the wards to the garden and grounds, and ensuring the safe removal of the inmates in the event of fire; all of these being specially desirable points in the case of a hospital for insane patients of more or less acute sick and helpless types. The building extends for a distance of 120 yards from east to west, the main wards running forwards towards the south, and having corresponding north wings which form the main entrances to these wards for every-day traffic, and are joined to one another by a north covered way open at the sides. Passing from west to east there are traversed in succession: (1) The men's annexe ward for phthisical and infectious cases, comprising a ward for three beds with kitchen and bath-room, two isolation and observation rooms, a nurse's bedroom, and a small south verandah; (2) the men's reception ward with north wing, containing twenty beds in the body of the ward, six observation rooms, kitchen and bath-room at the north end, and parlour space at the south end; (3) the men's conservatory or winter garden with large south verandah, used mainly as an

extension of the reception ward ; (4) the men's infirmary ward with north wing, a large double ward with central partition, containing forty beds in the body of the ward, six observation rooms, kitchen and bath-room at the north end, and parlour space at the south end ; (5) the assistant matron's quarters (parlour south, bedroom and bath-room north) at the centre of the building ; (6) the women's infirmary ward with north wing, resembling the corresponding men's ward ; (7) the women's conservatory or winter garden with large south verandah, used mainly as an extension of the women's reception ward ; (8) the women's reception ward with north wing, resembling the corresponding men's ward ; and, finally, (9) the women's annexe ward for phthisical and infectious cases with small south verandah, resembling the corresponding men's ward. It will thus be seen that the hospital is divided by the assistant matron's quarters at the centre into two symmetrical and opposite halves, each half consisting from centre to east and west of a double infirmary ward, a conservatory with large verandah, a reception ward, and an annexe ward with small verandah, and that there are 154 beds for patients—77 for each sex. All the wards are 14 feet high ; in the two annexe wards there are allowed per patient for dormitory, day-room, and dining-room space 150 square feet of floor space, or 2100 cubic feet ; in the four reception and infirmary wards there are allowed per patient 100 square feet of floor space or 1400 cubic feet ; and each observation and isolation bedroom has an average floor space of 90 square feet and 1260 cubic feet of air space. Over and above these allowances of air space per patient, which correspond to the requirements of the General Board, it may here be mentioned that the two conservatories furnish supplementary day accommodation not included in the above figures, and that a main feature of treatment is rest in bed in the open air of the verandahs, so that the requirements of the General Board have been liberally interpreted.

A. The Reception Wards.

Each reception ward is shaped like a dagger, the body of the ward corresponding to the blade and the north wing to the haft or grip of the handle, and at their junction the kitchen and bath-room and the observation rooms opening on to short

passages on either side form the cross-piece or guard of the handle. These lateral passages lead to the conservatory on one side and the annexe ward on the other, both of which under ordinary circumstances are managed as part, and by the staff, of the reception ward.

(a) *The body of the reception ward* measures 84 feet long by 24 feet wide. The parlour space is at the south or sunny end, which has a large bay window containing at its centre a folding door opening outwards to the hospital garden and recreation ground; on each side is a fireplace, and the parlour furnishings comprise basket chairs, table, etc. The twenty beds, ten on each side, occupy the main stretch of the ward, and are arranged in pairs opposite the butts between the windows, the butts being sufficiently broad to take two beds with a chair (Austrian bentwood) between them, the beds thus not projecting beyond the interior splays of the windows and so not being in any draught from the latter. Below each window is a heating and ventilating radiator. Along the centre of the ward opposite the beds are the dining tables, which, measuring 4 feet by 3 feet, permit of the classification at meal times of those patients who are not confined to bed. At the north end of the body of the ward is a specially-constructed ward cabinet containing separate cupboards for dressings and lotions, medicines, napery for immediate use, charts, urine glasses, etc.

(b) *The kitchen, bath-room and six observation rooms of the reception ward* open off the north end of the body of the ward. *The kitchen* opens directly off the ward so that a nurse engaged therein, as at sick-room cookery, can still keep the ward under observation. The kitchen contains a small range for sick-room cookery and for warming, if necessary, the chief meals of the patients, which are cooked in the main kitchen of the asylum, and delivered in a hand-van at the north wing, into the corridor of which the kitchen also opens by another door. The kitchen has also a sink with plate-rack and drip-board (to save the work of drying dishes, etc.), a cupboard for other crockery and kitchen stores, and a kitchen table and chair. *The bath-room*, with lavatory and water-closet, also opens directly off the ward, an arrangement which is perfectly safe sanitarily with good plumber work, and has similarly the object of securing facility of supervision, so that the nurse standing at the door of the bath-room can safely observe

the occupants of the ward and the bath-room. The water-closets, basins, etc., are so placed in the bath-room that they are easily observable from the ward door, and the water-closets for privacy have doors which, to allow supervision, are raised 1 foot above the floor, and are only 4 feet high. The bath-room has one bath with free access all round (a point of importance in connection with the bathing of new patients), two basins, a slunge for slops, a steeping tank for disinfection of any bed and personal clothing before it is sent to the asylum laundry, two water-closets, a stand for urinals, hand-basins, etc., and a fixed towel-rail and mirror. The bath-room fittings (chiefly by Twyford), are the latest asylum types for the avoidance of misuse and accidents, so far as this is possible by structural devices. The bath-room has, in addition to the door opening from the ward, two other doors, one opening from an undressing room in the north wing in which newly-admitted patients discard their clothing, and the other opening into one of the observation rooms, which thus also serves the purposes of an examination-room for a new patient (with whom it is thus possible for the physician to have, at the outset, a private and confidential interview), and of a dressing room on bathing days. The six *observation and isolation rooms* open off two short passages next to the kitchen and bath-room, and have been partially detached from the body of the ward to keep the latter as quiet as possible, but, at the same time, are freely accessible to the inspections of the nurse, who thus does not require to leave her ward for the purpose, inspection being facilitated structurally by placing the door of the observation room, in most instances, across one corner of the room, so that the nurse looking through the door can see at a glance all parts of the room. One of the observation rooms, in the passage leading to the annexe ward, is an india-rubber padded-room (by Pocock Brothers, of London). The isolation rooms are also available, if not otherwise required, as private bedrooms.

(c) *The north wing of the reception ward* contains an entrance corridor, opening at one end into the body of the ward between the bath-room and kitchen, and at the other end to the north covered way outside. Opening on the two sides of this corridor are—(1) cloak and boot-room, next to the outside door; (2) coal-cellar, next to the outside door; (3) closet for pails, brushes, and floor-polish; (4) closet for soiled linen; (5) napery,

blanket, and clothing store; (6) charge nurse's bedroom; (7) ward kitchen, which also opens, as already described, by another door, directly into the body of the ward; and (8) undressing room for newly-admitted patients, which contains a weighing machine and height standard, and opens by another door into the ward bath-room, which, again, as already described, opens by two other doors, into the body of the ward, and into the nearest observation room which thus serves the extra purposes of examination room for new patients and of dressing-room on bathing days.

B. *The Conservatories or Winter Gardens and Large Verandahs.*

These form elegant and useful features of the Hospital, and are placed between the reception and infirmary wards, and were originally intended by me for the use of those patients in both wards who were able to be out of bed, but unable to go out of doors owing to stress of weather. In practice, however, owing to the systematic carrying-out of the sanatorium treatment of all newly-admitted patients by rest in bed in the open air, the conservatories and their verandahs have been utilised almost entirely by the inmates of the reception wards, and are now regarded as part of the reception wards, and any patients in the infirmary wards who it is considered would be benefited by a course of bed-treatment in the fresh air are, for the time being, removed to the reception wards. Each conservatory opens by east and west doors into the reception and infirmary ward on either side, and by a folding door into the verandah, and is a large airy apartment, containing plants and flowers and basket-chairs, and forming a pleasant convalescent room for the reception-ward patients when indoors and not confined to bed, and devoted to such purposes as sewing-room, reading-room, smoking-room, etc. The verandahs face the south, and are sheltered from the north east and west by the adjoining buildings, and their roofing projects well beyond the foot of the beds, which are arranged parallel to one another at right angles to the long axis of the verandah. A southerly gale with rain and severe wintry weather are the only conditions which prevent the use of the verandahs for the sanatorium treatment of active insanity. All newly-admitted patients, unless there is some special reason to the contrary, are taken to the

verandahs on the morning following admission, and given straight away a course of rest in bed in the fresh air, lasting for days or weeks, according to circumstances. This system, combined with isolation if necessary in certain cases, and attention to individual features in all cases, is in my experience the most satisfactory method of alleviating active insanity, is productive of good therapeutic results, is based on sound physiology and correct pathology, and effects a minimum use of hypnotics and sedatives.

C. The Annexe Wards and Small Verandahs.

These form the east and west extremities of the hospital. Each is an annexe of the reception ward, and under ordinary conditions is managed as an extension of that ward, and with the same staff, but if necessary the annexe can be entirely shut off from the reception ward and worked as an independent self-contained unit with its own staff. Each annexe has an entrance corridor opening by a door at one end to the outside grounds, and by a door at the other end into the reception ward, namely into one of the passages between the observation rooms. On the north side of the annexe corridor are a nurse's bedroom next to the outside door, and two observation and isolation rooms, one of which is conveniently used as a room for a patient who is dying, and who can be quietly visited by the relatives, and removed after death by the outer door of the corridor without attracting the attention of the patients. On the south side of the annexe corridor are two doors; one opening into the annexe kitchen is close to the outside door, for the delivery of food when the annexe is used as an independent unit, and the other, leading into the ward of the annexe, is opposite the two doors of the observation and isolation rooms, so that the nurse merely has to cross the corridor to make her inspections, and can still keep the ward under observation. The ward of the annexe has a bay window facing south, and containing at its centre a folding door which opens outwards into the garden, and leads to a small sheltered verandah for the open-air treatment of patients suffering from pulmonary phthisis and other infectious diseases of suitable nature. The annexe verandahs are half the width of the conservatory verandahs, and can accommodate four beds placed side by side.

Both annexe and conservatory verandahs can be inspected from the windows of the adjoining wards. The ward of the annexe has its own bath-room (with bath, disinfecting tank, slunge, and water-closet), and kitchen (with range, sink, rack, cupboards, etc.), both opening directly off the ward to facilitate supervision, the kitchen, as before mentioned, also having a separate door to the corridor. The ward is fitted with radiators below the windows, and a fireplace between the bath-room and kitchen doors, and it contains three beds, and in addition to the usual furnishings a cabinet similar to that in the reception ward, but smaller.

D. *The Infirmary Wards.*

These form an original feature of the hospital. For some years past at Ayr Asylum the class of patients suitable for treatment in such wards has been, in the case of both sexes, usually twice as numerous as the class of patients in the reception wards. This would have implied the building of two infirmary wards for each sex similar in size to the reception wards—that is, four infirmary wards in all, with four north wings, four bath-rooms, four kitchens, and probably not less than sixteen observation rooms (four to each ward). But the sick and the debilitated, the paralysed and the bed-ridden, the blind and the halt, the maimed and the helpless, who form the bulk of the inmates of an asylum sick-room and infirmary, are as a class quieter and more easy to manage, and require a relatively smaller nursing staff than the newly admitted, who, as a class, are physically ill and actively excited, depressed, confused, resistive, delusional, impulsive, suicidal, homicidal, and the like, and require not only skilled nursing but also careful supervision for the avoidance of accidents. Therefore I considered that there would be at least no loss in efficiency, and yet a distinct gain in economical construction and administration, if it were possible to make one large infirmary ward for each sex. And this is what has been done. Each infirmary ward, like the reception ward, is dagger-shaped, but the blade of the dagger is twice as broad, the body of the infirmary ward measuring 84 feet long by 48 feet wide, and being partially divided into two halves by a longitudinal partition, which by its pillars supports the roof, and is pierced at its centre

by an archway through which, as well as at both ends, there is free passage between both halves of the body of the ward. The partition is 10 feet high, and is clear both of the floor and ceiling for cross ventilation; its upper 6 feet consists of glass and wood to facilitate supervision, and its lower part consists of Fram boarding cemented to give a sense of comfort and privacy to the patients occupying the beds on either side of the partition. The body of the infirmary ward, each half of which measures 84 feet by 24 feet, is thus twice the size of the body of the reception ward. The parlour space of the ward is at the south end, which has two large bay windows, with folding doors at the centres opening to the garden, and a fireplace on each side. The forty beds occupy the main stretch of the body of the ward, being arranged ten on each side of the partition, and ten next to the outside walls in pairs opposite the butts between the windows. Radiators are placed below the windows and hot pipes below the partition. In addition to the usual furnishings there is a large cabinet similar to that in the reception ward and placed at the north end. Opening off the north end of the body of the ward are (1) the kitchen, which is similar in size and arrangements to that of the reception ward; (2) the bath-room, which is slightly larger than that of the reception ward and contains two baths, but experience has shown that one bath would have sufficed, so many of the inmates of the infirmary ward being bedridden, and therefore requiring to be sponged and cleansed in bed; and (3) the six observation and isolation rooms, which are a sufficient proportion for the quieter class of patients concerned. The short passages between the observation rooms on either side lead by east and west doors to the conservatories and to the corridor of the assistant matron's quarters at the centre of the hospital. Between the kitchen and bath-room is the door leading to the corridor of the north wing of the infirmary ward, which is the same size as the north wing of the reception ward, and has the same suite of rooms with the exception of an undressing room, which was unnecessary, as no patients are admitted directly to the infirmary wards from the outside community. The extra space thereby gained has been utilised for the necessarily larger napery and clothing store, and cloak and boot-room. From the description it will be seen that the infirmary ward, like the reception ward, has main doors of entrance and exit placed

north, south, east, and west. All the doors of the hospital and its various apartments, with the undernoted exceptions, have spring locks, and so when closed can only be opened by means of an official's key. The exceptions comprise the doors of all observation and isolation rooms, and the doors leading from the body of the various wards to their respective entrance corridors in the north wings and east and west annexes. These doors have dead locks. It may be added that all the large folding doors at the south ends of the wards and conservatories are kept open during the greater part of the day in suitable weather, affording pleasant views of the hospital garden and country beyond.

From the description which has been given of the plan of the hospital, it will be seen that *the essential principle aimed at in the design of every ward has been to facilitate structurally the work of the nurse.* The essential point of distinction in the nursing, care, and supervision generally of insane patients in hospital wards, as compared with ordinary patients in hospital wards, is that the supervision of the former by the nurses must be constant, ready, and vigilant. This is the only way to prevent accidents. In the case of a general hospital ward the nurse on duty can often leave her ward safely for a few minutes to go, say, to the kitchen, bath-room, napery store, etc. In the case of a mental hospital ward, however, in which there are always some untrustworthy patients, the nurse on duty can never safely leave her ward in this way, but must always remain present and watchful. The ward must, therefore, be so arranged that it is not necessary for the nurse on duty to leave it, should there be only one nurse on duty at the time, as during the night, staff meals, etc. For this reason, in every ward of the hospital the kitchen and bath-room and observation rooms have been made directly accessible from the body of the ward, the observation rooms, for the sake of the quietness of the ward, opening on to short side-passages; and in close proximity has been placed a specially constructed ward cabinet containing napery for immediate use, dressings, medicines, etc. By grouping the kitchen, bath-room, observation rooms, and cabinet at the north end of the ward—thereby appropriately freeing the sunny south end for the parlour space—and by aggregating the patients who require most attention and supervision in the beds at the north end and in the observation rooms, it is obvious that the work

of the nurse has been considerably facilitated, and that mental hospital wards constructed in the above manner can be efficiently managed by a relatively small staff.

Administration of hospital.—The hospital, with its 154 beds (for patients), has a day staff of eighteen, and a night staff of four, each infirmary ward having a staff of four day nurses and one night nurse, and each reception ward with the annexe and conservatory and verandahs having a staff of five day nurses and one night nurse. During the eight months the hospital has been in occupation it has been necessary on only two occasions, following the admission of an extra number of difficult female cases, to temporarily strengthen the staff of the women's reception ward by the addition of one special night nurse. Hitherto, owing to the comparatively simple nature of the cases in the annexe wards, it has not been necessary to work either of them as a self-contained unit separately from the reception ward; but if this contingency should arise the annexe ward would be shut off from the reception ward and staffed with one day nurse and one night nurse. The four ordinary night nurses make their headquarters at the north ends of the reception and infirmary wards. The day charge-nurses of these four wards have their bedrooms in the corresponding north wings, and the second charge-nurses of the two reception wards sleep in the east and west annexes. The assistant-matron's quarters are accessible from the infirmary wards, between which they are situated. The hospital wards are in telephonic communication with the main asylum buildings, namely with the medical officers' quarters and the headquarters of the two chief night officials, who pay periodic visits to the hospital.

Male nurses v. female nurses.—In the hospital the men's reception ward is staffed with male nurses or attendants, and the other wards by female nurses, the nursing of insane men by women being thus confined to the men's infirmary ward. In the men's infirmary ward the nurses, with the assistance of three or four helping patients, perform all the duties required of them, except the bathing of those relatively few patients who are not confined to bed, and who by a simple arrangement go for their bath on bathing days to the men's reception ward. To some extent the inmates of the men's infirmary ward are selected; that is to say, any male patient who requires hospital treatment, but is considered an unsuitable case to be nursed by

women, is sent, not to the infirmary ward, but to the reception ward ; and if any patient already in the infirmary ward proves himself unsuitable for female nursing, he is sent to the reception ward ; and conversely, any male patient in the reception ward who is considered a suitable case to be nursed by women is sent to the infirmary ward. The class of patient in the men's infirmary ward—the more or less quiet and harmless insane man with bodily infirmity or illness—is in my experience efficiently nursed and supervised by women. At the same time there are many insane men who require careful nursing and supervision, who cannot be suitably or safely nursed by women, owing to the intensity of their mental symptoms, for example, severe excitement, vivid hallucinations and delusions, suicidal and homicidal tendencies, etc., these being common amongst newly-admitted cases ; and for this reason the men's reception ward has a staff of male nurses or attendants, and of attendants only. Given the right type of attendants with the true nursing instinct—and they exist—the work of the reception ward is performed with efficiency, propriety, and safety, and with satisfactory therapeutic results. Although the men's infirmary ward has a staff of female nurses, who are under the jurisdiction of the matron and her assistant, the head attendant keeps in touch with the patients of this ward and supervises their clothing and the furnishings of the ward. Given head officials of the right type, administrative difficulties do not arise. The assistant matron, who is a fully-trained and certificated hospital nurse, supervises the practical instruction of the nurses in the men's infirmary ward and in the women's wards, but she is careful not to derogate the authority of the charge nurses, and her duties do not extend to the men's reception ward.

Food and cooking arrangements.—The chief meals for the hospital are cooked in the main asylum kitchen, and, as in the case of the villas, are conveyed in closed hand-vans, being delivered at the north wings and warmed, if necessary, before serving in the ward kitchens, which are also utilised for any extra sick-room cookery. The meals for those patients not confined to bed are served at the dining tables in the wards, or for variety in the conservatories or on the garden terrace in suitable weather. The staff go for their meals to the mess-rooms in the nurses' and attendants' homes at the centre of the main asylum buildings.

Laundry arrangements.—All bed and personal clothing from the hospital is washed in the asylum laundry, being previously disinfected, if necessary, in the ward bath-rooms.

Ventilation.—The system of ventilation is mainly natural—by windows, doors, and fireplaces—but is aided by extraction fans placed in ceiling trunks and driven by electricity supplied from the asylum electric station and boiler-house. Each window has (*a*) an upper “Hopper” sash hinged below and opening inwards, where it rests on two cheeks; (*b*) two ordinary sashes moving vertically up and down so as to allow clear openings to the maximum extent of six inches above and below; (*c*) a deep lower sill-rail; and (*d*) below each window is a ventilator and radiator. The only windows of the building which have shutters are those of the observation bedrooms. These shutters consist of two vertically-moving sashes, which can be locked half way up or right up, and the upper sash is pierced for ventilation. Each observation room has its own ceiling ventilator and extraction shaft.

Heating.—The heating is by means of radiators in the wards and conservatories, and of horizontal pipes protected with Russian steel in the observation and isolation rooms, and is effected by hot water at low pressure on the Reck patent circulator system, the steam for heating and circulating the water being supplied from the asylum boiler-house. The special feature of this Danish system of heating is that the steam, reduced by a valve to low pressure (a pressure of three pounds to the square inch suffices as a rule in the case of the hospital) not only heats but also circulates the water in the system, thereby circulating the hot water downwards as well as upwards, and moving it through the pipes and radiators much more quickly than in the case of the ordinary low-pressure systems, with the result that there is no difficulty in keeping the wards at a temperature of 60° F. even in the depth of winter. Last winter was a specially severe one, and yet it was never necessary for the radiators, which are numerous and can each be independently regulated with a key, to be worked to their full heating capacity, and consequently no fires were required to warm the wards. The circulators and main piping of the Reck system are carried in the roof, thereby avoiding not only the considerable excavation and building necessary in the making of an underground duct, but also the presence of much unsightly piping in the wards,

the chief pipes visible being the small vertical flow and return pipes for each radiator.

Lighting.—The lighting is by electricity, supplied from the asylum electric station, and by means of double filament lamps, each of sixteen candle-power and two candle-power, subdued light is secured during sleeping hours.

Protection from fire.—As the whole hospital is on the ground level, and as each main ward has exits to the north, south, east, and west, and each annexe has exits to the south, east, and west, there is abundant provision for the safe removal of the patients in the event of fire. Each ward has its supply of fire-buckets for first aid, and an internal fire-plug; and surrounding the hospital is a 4-inch water main, with external fire-plugs at necessary points. Each ward is provided with an electric fire alarm, the button of which, when pressed, sets off the siren at the asylum fire station, and alarm gongs in the sleeping quarters of the fire brigade.

The water supply and the sewage system are connected to the corresponding systems of the rest of the asylum, the water being supplied by the Corporation of Ayr, and the sewage being dealt with in the asylum septic tank and filter beds.

The materials, fittings, and furnishings of the hospital are substantial in character, and sufficient indication of the nature of the fittings and furnishings has already been given in the foregoing description. As to the materials of construction, the roofs are slated and have red tile ridges. The walls are of white freestone outside, and of single brick inside, the stone and brick walling being separated by a 3-inch cavity. The brickwork is finished internally with Keen's cement below (6 feet), and Adamant plaster above, all internal angles and corners being rounded off to facilitate cleaning, and the painting of the walls is in duresco. The floors are in selected narrow maple, stained and polished, as are also the walls and specially constructed shutters of the observation rooms. The floors of the bath-rooms, conservatories, and corridors of the north wings and annexes are in terrazzo. The walls of the conservatories are in glazed white brick, and the lower walls of the bath-rooms and kitchens are tiled.

Cost of hospital.—The cost of the hospital for total construction and fittings has been £100 per bed, which is considerably less than the cost per bed of asylum hospitals hitherto.

The main explanation of this moderate cost has been the design, from which, while securing the means of efficient treatment, I eliminated everything which could be considered superfluous. Thus, in the first place, given the main kitchen of an asylum, and the means of distributing the cooked food—a system which is observed in all large hospitals and has received further development in asylums with separate villas—there is no necessity for the central kitchen seen in the majority of the hospitals of asylums. All that is required is the ward kitchen, which, in any case, is necessary in any properly equipped hospital ward. Again, there is no necessity for a central dining-room, or for special day-rooms, or special dormitories in an asylum hospital, apart from the hospital wards themselves in which insane patients have their habitat for the time being, like the inmates of ordinary hospital wards. The mental hospital ward, like the ordinary hospital ward, serves as dormitory, day-room, and dining-room for its inmates, and if the requisite space is provided in the ward for these three purposes, there is no need to double the dining, sitting, or sleeping accommodation for the identical patients within the same building. And it is not a difficult matter to combine in the form of a well-proportioned ward the allowances of dormitory, dining, and parlour space required for a given number of patients, and to arrange the ward internally with a view both to useful working and pleasing appearance. Again, the addition of a central kitchen and central dining-room, and of special day-rooms and special dormitories in the hospital of an asylum, obviously means not only extra original cost of construction, fittings, and furnishings, but also a corresponding increase of officials to look after them, and extra accommodation for these officials; and all this means a permanent burden on running expenses in the future for upkeep of fabric, fittings, and furnishings, and for board and wages of staff. For these reasons I eliminated from the design of the hospital a central kitchen and dining-room, and special day-rooms and dormitories, and decided that the hospital should consist essentially of wards, each of which, like an ordinary hospital ward, was to combine the proper dormitory, dining, and parlour space required for a given number of patients. Again, as regards the design of the hospital wards themselves, the plan of the two large double wards with central partition is not only suitable for the quieter class of insane patients who form such a large

proportion of the inmates of the sick-rooms, infirmaries, and hospitals of asylums, but has obviously effected a considerable saving as regards the original cost of construction, fittings, and furnishings, and also the future cost of upkeep and staff expenses. In confirmation of this latter point it may be mentioned that during the eight months the hospital has been in occupation, and notwithstanding a reduction of sixpence per week in the rate of board for the asylum patients during the last six months of that period, the credit balance under the maintenance account of the institution was increased by £600. The opening of a large addition to an asylum, as a rule, tells heavily at first on the maintenance account.

Other factors which have contributed to the moderate cost per bed of the hospital have been the care bestowed by the architect on the details of his schedules and the supervision of the works during erection, the introduction of the system of heating adopted, the use of the asylum branch railway for the conveyance of the heavy materials of construction, and, lastly, keen competition owing to depression of trade at the time of the placing of the contracts.

(¹) Visited by the Scottish Division of the Medico-Psychological Association, on the 22nd March, 1907.

Recidivism regarded from the Environmental and Psychopathological Standpoints. By J. F. SUTHERLAND, M.D., F.R.S.E., Deputy Commissioner in Lunacy for Scotland.

PART II.

It does not require a Sherlock Holmes to distinguish the *bond fide* tramp with tatterdemalion, unkempt locks, gaping boots and grimed skin, from the *bond fide* labourer in search of work.

Interchange of Crimes, and of Crimes and Offences, and of Criminals and Offenders.

WITH the view of testing to what extent an interchange took place between the perpetrators of the four major crimes I have prepared a return of 370 convicts and long-term prisoners in Scotland, convicted of (1) homicides, assaults, etc.; (2) crimes