trolling power of what we may describe as a psycho-substantial Unity wherever and whatever this may be.

For, anything that constitutes the self-hood of the individual himself is absent with consciousness, when he is in the hypnotic state.

The only conclusion that can truthfully be drawn from these experiments seems to us to be that in the hypnotic state, so far as there is automatic production of induced hallucinations there is duality of function.

But when the individual is de-hypnotised, when the *psychic unity* reasserts its controlling power, when consciousness returns, neither the automatism nor the duality are any longer apparent.

We must now take leave of Dr. Ireland, and in conclusion we may congratulate him upon having adopted throughout his work that judicious combination of the *style périodique* and the *style coupée* which is especially in harmony with the subjects upon which he writes: not wearying the ear with meaningless and monotonous cadences, but speaking to us conformably with the maxim of Quinctilian, *non semper utendum est perpetuitate et quasi conversione verborum, sed sæpe carpenda membris minutioribus oratio est.*

W. H.

Hospital Construction and Management. By Frederic J. Mouat, M.D., F.R.C.S., Local Government Inspector, &c., and H. Saxon Snell, Fellow of the Royal Institute of British Artists. 280pp. London: J. and A. Churchill.* (*First Notice*).

Impossible as it must ever be to produce a treatise which shall deal exhaustively with a subject capable of such indefinite extension as that now before us, and so acknowledged by the joint authors of the work, whose title heads this paper, we may yet congratulate those specially interested in any form of hospital or asylum work on possessing herein so careful a record of diligent, varied, and detailed observation.

The man who should design and carry out a *complete* hospital or asylum structure (even so far only as present knowledge extends), must, we think, graduate in the schools both of medicine and architecture, for however skilful the architect, he cannot possess a constant readiness to apply

* See Journal, July, 1885.

medical knowledge, and however practical the medical man he will certainly spend money largely in excess of what is necessary to attain his immediate ends.

The plan of the book is opened by a joint preface, in which the authors show the intention of the arrangement of subjects according to their respective importance, and rightly, we think, have endeavoured to establish medical principles and requirements to which buildings and their fittings should be adapted.

The difficulty of dealing with such a work within the limits of an ordinary paper is so apparent, that we shall only attempt in this number to extract the salient features therein presented of the more perfect type of hospital building and management, reserving for a future one some remarks on the history and comparative qualities of the examples described and illustrated.

As respects the medical author's part, we are met by a large number of recommendations, based, as is incidentally shown, on a wide and practical experience.

There is no uncertain expression of opinion as to the lately much-vexed question of the immediate superintendence of the establishment.

Under the heading "Special or Executive Control" he says:—

"The immediate government of a hospital should be entrusted to a resident medical superintendent. It is so generally in the United States of America, in some of the greatest hospitals on the continent of Europe, in the most important hospitals of Scotland, and in the large and well-managed separate poor-law infirmaries of this Metropolis. To the medical superintendent all persons within the walls of the institution should be strictly and directly subordinate. There should be no concurrent, separate or conflicting authority. He should not be charged with the treatment of the sick, and should neither possess nor exercise any power of interfering with the physicians or surgeons in their treatment of cases of disease, accident, or injury. The direction of all other internal concerns should be exclusively in his hands, such as the maintenance of order and discipline, the regulation of supplies of all kinds, the custody of all appliances and instruments, and the initiation of all such structural and other changes as may from time to time be found necessary. In matters of finance and supply he should act under the orders of the special sub-committees of finance and buildings, appointed from the general governing body. He should regulate the admission and discharge of patients, and the keeping of the records of the hospital, with the aid of such subordinate staff as is always required in great institutions.

"The out-patient department should also be under his control. The appointment, removal, and distribution of all nurses, servants, and subordinates generally should likewise be vested in him, subject to the immediate control of a house committee. He and all the sub-committees should submit an account of their proceedings monthly, or as much or less oftener as might be deemed necessary, to the general committee at its appointed meetings, with whom should rest the final sanction and approval of all matters connected with the institution. The general committee should have a paid secretary to arrange and keep its records, and be the official medium of communication between that body and the officers of the hospital.

"If there be any class or kind of public institution which more than any other demands the possession of special and technical knowledge and more direct unity of authority in its immediate management, I hold it to be a hospital. A medical superintendent, from his professional training, is alone competent to gauge at once, with promptitude and decision, all the requirements of such an institution; and, as he must always be appealed to in the last resort, common-sense and the proper conduct of business of all kinds in every other walk in life, indicate that he should possess the power, in the first instance, of dealing with every such matter as pertains to the economical and efficient control of a place devoted to the healing of the sick. Fettered as he would be by his responsibility to special committees and the general committee, there would be no fear of his abusing such authority, for a swift and sure remedy could be found for such abuse. But, as a matter of fact, it is not abused in those institutions in which it is in use, as I have had abundant opportunities of seeing.

"However, even our existing system, mediæval and out of harmony as it is with the age in which we live, is better than that of the director of a French hospital, acting solely under the orders of a central official authority, which is, as stated before, about the most inefficient and mischievous form of government that I have ever seen in action."

Under the heading "Nursing" he says:—

"That skilled and trained labour is infinitely more efficient and trustworthy than unskilled and untrained labour is undeniable. But to elevate nursing into a special profession, and to arm it with independent authority in the management of disease or accident, I hold to be a mischievous mistake, alike in public institutions as in private life. It is, and must always be, from its very nature, a subsidiary function, but not the less valuable or important on that account. Neither the education nor the training of the most accomplished nurses can fit them for independent charges, nor are they intended to do so. The elementary and, of necessity, superficial acquaintance, with so much of anatomy, physiology, chemistry, pharmacy, and physics, as is now imparted to them, is an important auxiliary in their practical

training, but cannot go further in rendering them in any way independent of the physician or surgeon, under whom they are acting." "I cannot, again, concur in any scheme for connecting the duty of nursing with any form of religious or quasi-religious organization, for hospitals are open to all classes, sects, and creeds, and should be absolutely free from even the suspicion of any sectarian bias or proselytizing tendency."

When we come to the subject of "Hospital Records," a difficulty at once faces us, in seeing our way to carry properly into effect the suggestions made for collecting and summarising the results of hospital treatment. Here, however, our author is careful to guard himself in his recommendations, by accompanying them with a caution, not too strong, we think, as to the care necessary.

After pressing on our attention the advantage of numerical statistics in this special branch of human knowledge, he proceeds:—

"There is, at the same time, none other in which it is more necessary to guard against the fallacies incidental to, and, in some degree, inseparable from, this method of inquiry, in which more rigorous exactness is necessary in the collection of the facts themselves, and in which greater caution is required to avoid hasty or dogmatic deductions from mere numerical results."

Passing on to the more definite ground of the "Principles of the Construction and Arrangements of Hospitals," we find much that would, perhaps, be more properly incorporated in the architectural section of the work, but we do not doubt the advantage of having the views of a medical expert on the same points dealt with later on, though it tends to make the book slightly diffuse.

In the preliminary matters of site and surroundings certain axioms are laid down, which we venture to think not entirely practicable. For instance, "every hospital, wherever placed, should be surrounded by a zone of aeration, unencumbered with buildings or any other cause of obstruction of light and air, to a distance of at least double the height of the buildings." The question at once occurs, how in London or a large town can this be secured without going to an enormous expense? We are also told that the interspaces, in town or country, should not be paved, but should be cultivated as gardens. Is this equally true of ground which is known to be "made," and probably of doubtful composition?

Our authors are at one with each other, in giving a favourable opinion of the pavilion (or detached) system of building, as opposed to (in general) the block or many-storied system:

the advantage ascribed to the former being its freedom from contamination by exhalations from below.

In view of the known qualities of the atmosphere of London, we should have liked to see some reference made to the comparative healthiness of hospital, or asylum wards, elevated to some distance from the ground level, not merely with a dry basement, as is frequently mentioned and illustrated in this work, but boldly treated by the introduction below of premises used for different purposes, in order to gain an upper level for the sanitary work.

The well-known disinfecting properties of earth are most interestingly exemplified by an instance given of the author's experience in India.

"The Hindus of every part of India with which I am acquainted, have, from time immemorial, possessed a means of purifying the atmosphere of their rooms and tents, by spreading a light coating of a mixture of earth containing organic matters on their walls and floors, which enables them to dispense, to a considerable degree, with ordinary ventilation. The process is called 'leoping,' and is usually performed by the women of the household. With a view to submit this proceeding to a practical test, I had four cells in the Presidency Jail of Calcutta, each containing 480 cubic feet, and practically unventilated, carefully prepared. Two of them were limewashed throughout, and the two others 'leoped.' I had four healthy prisoners locked up in them at night, one in each cell. On opening the cells next morning, the two which were limewashed were stuffy and offensive, redolent of the peculiar animal odour exhaled by native prisoners in such circumstances. The two others were as fresh and as pure as if no one had slept in them. This led me, as head of the prison department, to direct the application of the principle generally in all the jails under my administrative control, so far as it was susceptible of direct application to walls, floors, and earthen beds. I also employed charcoal extensively for the same purpose—the purification of the air of prison wards from animal exhalations—and I had reason to believe, with success. This seems to me to be deserving of careful trial in Europe."

There are many general observations on the subject of ventilation and fresh-air supply, and the use of a central or general extract shaft is strongly deprecated. The tabular statements given on page 34 are interesting as showing to a certain extent what effect upon the health of the inmates the numbers contained in a building may have. The more reliable of them, quoted from Mr. Lawson Tait, have a distinct bearing on the advantage elsewhere insisted on of avoiding aggregations of sick people.

In the matter of air supply and cubical capacity required

per bed, some interesting examples are given of the practice on the continent, and although this part of the subject is more particularly dealt with in the architectural section, we may requote a part of the report of the Central Commission on the plans for the new civil hospital of Antwerp. They said:

"But after all, is it in this amount of cubic capacity (60 cubic metres per bed) that the best solution of the question of ventilation is found? With good ventilation much less space would suffice, and is it not natural to suppose that renewal in a given time is easier in a small cubical area? In the matter of ventilation it must not be forgotten that it is not only all important to give constantly pure air, but to be able to remove vitiated air as quickly as possible, without causing hurtful draughts. The processes of ventilation are not yet so perfect as to ensure full reliance; hence it is better to be a little cautious, and not to run the risk of increasing the inconveniences we have pointed out by building too great wards."

This expression of opinion is largely borne out by our own experience of both public and domestic work, in the latter of which it is now generally allowed that low rooms are as wholesome as lofty ones, provided that careful attention has been paid to the easily regulated introduction of fresh air.

In the matter of aspect, we may specially note the following extract given from the report of a French Commission, presided over by General Morris in 1865. This Commission had authority to prescribe the conditions for hospital and asylum building and management throughout France, and some of their recommendations may well find place in such a work as this, *e.g.*, "An east and west exposure of the sick wards is the most desirable." "The upper floor should always be separated from the roof by attics in which patients should not be placed;" besides others already adopted by the Chirurgical Society of France, and previously detailed.

Lying-in hospitals are discussed under a separate heading, and the necessity is shown for extraordinary care in the avoidance of any condition in the least degree favourable to the spread of puerperal fever. St. Thomas's, University College and Westminster Hospitals, in London, and the New Hôtel Dieu, the Maternité and the Clinique, in Paris, are specially mentioned as types to be avoided, whilst the Western Infirmary, Glasgow, the New York Hospital, the Johns Hopkins Hospital, Baltimore, the Friedericksheim, in Berlin, and the Hospital of St. Eloi at Montpellier, are most favourably reported on.

The mention of buildings specially designed to guard against the spread of contagious diseases, or for their cure, brings us to the consideration of the advantages claimed (firstly by the medical author) for a one-storey or "hut" system of construction, and here we cannot do better than requote the late Dr. W. A. Guy on the experience of Dr. Brocklesby, an English military surgeon of the last century.

After describing the loss of life from disease amongst a number of picked soldiers, returned in 1758 from an unprosperous attack on the coast of France, and the difficulty experienced in disinfecting an old house at Newport in the Isle of Wight, he says:—

"Taught by this sad experience, and finding that the soldiers landed from the transports were more numerous than could be accommodated in all the spare out-houses, barns, and empty cottages which money could procure or humanity supply, it was resolved to erect a temporary shed with deal boards upon the open forest, to thatch it with a coat of new straw thick enough to keep out wind and rain, and to make it large enough for 120 patients. A country workman did the work (charging for the use of the boards) for £40. Here I quote Dr. Brocklesby's words," says Dr. Guy:—"'Although the hovel was finished in a fashion the most slovenly, and apparently inadequate to the end proposed, upon trial it was found that, notwithstanding most extraordinary cold as well as moisture, which the sick there lodged had suffered, remarkably fewer died of the same diseases, though treated with the same medicines and the same general *régime*, than died anywhere else; and all the convalescents recovered much sooner than they did in any of the warmer and closer huts and barns hired round Newport, where fires and apparently better accommodation of every sort could be provided for them.'

"Now this striking fact happened to come to the knowledge of Mr. Adair, Inspector of Regimental Infirmaries, who was in the neighbourhood; and he, 'remarking that this currency of fresh air had such amazing salutary effects upon the men hutted in the forest, procured an order to convert Carisbrooke Castle itself, situated upon the extremity of a very high ridge of land, into one large general hospital where near 400 sick might, on occasion, be lodged together.'

"'At first,' says Dr. Brocklesby, 'it was expected that the sick brought to that place would do better than their comrades who were lodged up and down in the miserable huts of the town, or than those upon the wild bare forest near Newport, under that occasional hovel (meaning the extempore hospital). Yet the event verified our conjectures only in part, for, though the castle was more prosperous to their recovery than the small rooms in low-roofed houses, yet more proportionally of the foresters were recovered, and that much sooner than any of the rest; and it evidently appeared that all the damage and inconvenience

the men suffered from cold or redundant moisture in that place was much fitter to be tolerated, on the whole, than the mischiefs complicated on the sick by huddling together 300 or 400 men and upwards under one roof, and in the out-houses adjoining to the castle.'

"But Dr. Brocklesby has still something to tell us about cheap extemporised hospitals and their good effects, for two years later [1760] a dangerous putrid fever made its appearance amongst the sick of the 30th regiment at Guildford, in Surrey, which led him to erect other hospitals with like good results, and at the reduced cost of something above £10 a piece."

"The sick soldiers were at first taken to their infirmary, about five miles from the camp. As this place was crowded with more than four times the number it ought to have contained, Dr. Brocklesby remonstrated, and obtained from General Cornwallis plenary powers to act. It was in the beginning of September, 1760, when very unusual numbers from the 30th Regiment, and a few from other regiments, were daily falling sick of putrid petechial fevers, and when proper accommodation for the sick could by no means be procured in the town of Guildford, that the doctor made his second experiment. He 'pitched upon the driest and most airy spot,' on a rising ground in the field behind the camp, hollowed out as much of the dry sandy soil as he required, and near the edge of the hollowed ground drove in upright stakes, about 6ft. high from the surface, and placed wattles between them coated on the side next the weather with fresh straw. Rafters were laid over in a workmanlike manner, and coated thick like the sides. This made the hollow 'spacious and airy overhead, and yet abundantly warm and dry.'

"The structure cost the public ten guineas, added to £5 for straw and gratuities to the bricklayers, who built a large chimney and set a kitchen grate. So that probably this hospital for 40 patients did not cost more from first to last than £20. Now Dr. Brocklesby tells us that 'though several soldiers were admitted into this "repository," ill of a true petechial jail fever, only one or two at most died in it;' and he adds, 'I candidly ascribe their fortunate escape more to the benefit of the pure, keen air they breathed therein every moment than to all the medicines they took every six hours or oftener. For on account of this sandy soil there was an opportunity to remove as oft as necessary the whole inner surface of the floors and walls, which might be suspected to imbibe and retain any infectious matter proceeding from the patients, and the sand so scraped off was, every three or four days, ordered to be thrown out of doors.'"

Another instance of Dr. Brocklesby's experience follows, and then Dr. Mouat continues:—

"I have retained the whole of this lengthened account, because it is of infinite historical interest, and teaches several valuable lessons. There is no need for extravagance in the construction of hospital huts

beyond their being raised sufficiently above the ground on masonry supports, being ventilated throughout at the ridgepole, and each hut being self-contained, with its little kitchen, scullery, nurses' room, water-closet, bath and day room."

"There ought to and need be no difficulty in warming them; and if constructed of properly seasoned and kyanised wood, they would last as long as it would be desirable to let them live."

"In the summer and autumn, nothing is so good and so inexpensive as properly-constructed double-roofed tents, against which an unaccountable prejudice exists, founded solely upon a want of experience of their real value. They are easily warmed, lighted, and rendered proof against weather; can be stored cheaply, and transmitted speedily wherever the need for them may suddenly arise."

Dr. Mouat ends this section of the book with a slight sketch of convalescent homes, a part of the subject that might with enormous advantage be treated of more fully than in this case. We are convinced that more definite information would help to improve the quality of the only partially adapted premises used for this purpose in many quarters.

There are magnificent opportunities for such buildings on some of the high heath-clad parts of Surrey within easy reach of London, with which the situations of most homes connected with Metropolitan establishments will not compare.

Passing from the medical section to that dealing more entirely with the constructive feature of our subject, we find ourselves in the presence of a mass of information put forward in a clear manner by one who has evidently made himself minutely acquainted with the work in its essential details.

We do not find that he has summarised the best features of the buildings herein described, and following the particulars extracted from Dr. Mouat's section, we think the interest of our readers may best be served if we endeavour in the necessarily limited space of this review to point out how far the best examples agree in their various features, reserving for a future notice particulars of their history and description with some illustrations.

Site.—This should slope by choice to the S.E., and should be protected from any drainage from higher ground by deeply-laid pipes.

A dry sub-soil such as sand or chalk is preferable, unless the building can be founded on rock of any kind.

Aspect.—It is desirable that all sick wards should run north and south, thereby securing a better average of sunshine than in any other way.

Drainage.—All drainage should be by means of glazed stoneware pipes cut off by intercepting traps and open gullies from any danger of direct communication with the area of the building. In only one case that we can find in the architectural section is mention made of the advantage of using earth or ash closets, viz., in the report of the evidence given by Dr. Burdon Sanderson before the Commission on Small Pox and Fever Hospitals, published in 1882.

Surely the principle is capable of more extended application in connection with buildings situate in country districts.

Shape and Size of Wards.—Several examples are given of the circular ward system, but preference is shown for a parallelogram which shall contain from 20 to 28 beds, and shall be 24ft. wide by a height of not more than 13 feet. Those who attended the recent Congress on Public Health at Antwerp had an opportunity of carefully inspecting the new General Hospital in that city, which is an example of the circular ward system, and were favourably impressed with it. By way of parenthesis we may add that not only is a separate ward provided for Roman Catholics and for Protestants, but also for Freethinkers !

Warming.—Many methods of warming are described, and one patented by Mr. Snell is shown in detail. This is a stove for the centre of a ward, and for this plan of heating is undoubtedly a good thing. There are, however, so many difficulties as to expense and cleaning attendant upon horizontal flues and the space required for their construction, that we are not prepared to approve the arrangement recommended by Mr. Snell. This is of his invention, and is put forward with some prominence as an independent stove for the centre of a ward. We should have liked to see some description given of Captain Galton's stove for fixing in outer walls. One difficulty with respect to stoves in the centre of wards is that the wall surface, naturally the colder part of the room, is most removed from the heating power, and an even temperature is not attained.

Windows and Ventilation.—Casements for the lower two-thirds of the opening, and a hopper sash to fall inwards for the remainder, all fitted with special fastenings and gear for opening and closing.

We have used double sashes with advantage, air being admitted at the bottom between them by way of constant supply.

Natural ventilation is strongly, and we think rightly,

recommended by inference as opposed to mechanical modes. But in the former category must be included many admirable contrivances for the induction of fresh or the extraction of foul air by causing it in either case to travel along the course of smoke flues.

Several instances (chiefly continental) are given of the ventilation of wards by means of lantern-lights, but the principle does not recommend itself to us without the addition of many precautions against severe down draught.

Artificial Lighting.—As lighting by gas is at present almost a necessity in these large establishments, a mode of conveying away the product of combustion by pipes is recommended.

There is no doubt that, where possible to have it, the electric light (in the incandescent form) is the best, but expense is the difficulty here.

Floors.—Some amount of space is devoted to the description of various forms of flooring. Mr. Snell has used and recommended a simple plan of joists and boarding, the former bearing on each side wall of the ward, and about 12in. deep. This is undoubtedly a cheap form, but we think that a fireproof construction is infinitely to be preferred. All the examples given have wood floors of one form or other, generally waxed or varnished, but an incidental allusion is made to the use of tile floors in China. We are convinced that an arrangement, whereby a floor of good ordinary red tiles may be carried by iron bearers and warmed throughout its under surface by flues or pipes, would largely meet many of the difficulties arising in attempting the equable distribution of heat.

Cement floors are used in some continental buildings, but these we do not approve.

Planning.—We may endeavour to sum up the requirements of asylum or hospital building in this respect as follows:—

All administration offices and rooms to be as central as may be.

All cooking departments to be as detached as possible (without causing difficulty in working them), to avoid the rising of smells to the upper portions of the building.

All wards to be of a size easily worked; to be fairly detached from each other; to have nurse-room, kitchen, and day-room, the latter being of much advantage. The lavatories, bath-room, closets and sinks to be easy of access, but

all air communication to be cut off by cross ventilation in a most careful manner. We highly approve the recommendation to warm the lavatories and closets.

Section 2 concludes with some interesting tables of cost, the result being that its approved examples show an approximate expenditure on the buildings per bed of between £300 and £400, notable exceptions being St. Thomas's Hospital at £777, the Hotel Dieu, in Paris, at £1,215, and the Johns Hopkins at Baltimore at £866.

In our next number we hope to extend what under present circumstances is necessarily a very brief review of a work, which, but for some odd and irritating misprints and mistakes in wording, is a very excellent example of composition, printing, and illustration.

Étude Clinique sur la Grande Hystérie ou Hystero-Épilepsie. Par Dr. Paul Richer. Second Edition. Paris, Delahaye, 1885, pp. 975. *(First Notice.)*

We congratulate Dr. Richer on the splendid book, which represents the second edition of his great work on the disease we know as hystero-epilepsy, but which he, with Professor Charcot, more scientifically calls La Grande Hystérie. To the brilliant originality which characterized the scheme of his original volume, he now adds the perfection of finish, especially in the direction of illustration. But it is not mere pictorial representations, however graphic, which will convince those English neurologists who have not yet been persuaded of the striking accuracy with which the Salpêtrière school have described this most interesting form of neurosis, and so Dr. Richer, although excelling as an artist, piles Pelion upon Ossa in the shape of overwhelmingly weighty scientific facts, that even if any one had not seen a case of the kind, he must give way to such incontrovertible evidence. We say this, however much many may think it a hopeless platitude, because there *are* some who, more in ignorance than in anger, violently contest even the bare existence of such phenomena, and to them we commend the study of the same so eloquently described in Dr. Richer's pages.

We hope to point out at the end of this review the absurd weakness of "le scepticisme," "prétendu scientifique" as Professor Charcot calls it, in drawing attention to the extraordinary comprehensiveness and breadth of the position which the observers of this recently discovered or re-dis-