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## Summary

Albrecht Haas

### The Ward — A Study (pages 73—75)

Various plans for clinic buildings at the University of Freiburg im Breisgau have recently produced results that are both interesting and surprising. What was involved specifically was the ward and the problem was to tackle in a radical fashion the questions of care, accommodation of many people within a limited space, organization and economy while taking into account the underlying reasons that have given rise to the classical type of bilateral hospital. Moreover, it was necessary to study the advantages and the drawbacks of this plan which has become so conventional.

Ever since there have been hospitals there have been common wards—and this has been the case down to our own time. Here there is continuous contact between patients and nurses and everything here appears to be clearly organized and making for speedy care (cf. ill. 1). Nevertheless, the social structure of the patients and progress in medical science, as well, have obliged the architect to introduce certain innovations: the standard type of ward is to be replaced by smaller much more specialized units (cf. ill. 2). This conception becomes evident as soon as there is adopted the monolateral type of plan: that is, a series of rooms aligned along one side only of a long corridor, the other side not being absolutely necessary since the use of secondary service rooms does not appear to be absolutely indispensable. Moreover, operations were performed only by daylight and with natural ventilation (cf. ill. 3). Later, while the treatment of patients is becoming increasingly complicated, the number of secondary service rooms is on the increase and the transition is being made to the bilateral plan. The entire ward then becomes more and more elongated. Since the distances to be covered by the personnel have grown so long, adequate service can be rendered only if there is sufficient personnel. This conventional type of ward has, moreover, a number of other drawbacks according to patients, service personnel, doctors and organization and methods experts:

1. As we have just pointed out, movements between the patients' rooms and the service rooms have become too long, which becomes most disturbing in the face of the current shortage of personnel.
2. The working area under the direction of one single head nurse is much too large. This nurse, in charge of a ward, with 25 to 35 beds under her is plainly overworked. The supplementary staff is often obliged to perform functions which in no wise correspond to their scientific training. Young nurses are then obliged to do drudgery which has nothing in common with their professional aspirations, the consequence being that the profession of nursing is failing to attract young women in sufficient numbers, and the shortage of nurses is becoming alarming.
3. Continuous turnover of auxiliary staff. The patients—particularly those who are seriously ill—are of the opinion that this perpetual changing of staff is extremely disagreeable. The patients are obliged to adapt continually to "new faces."
4. Lack of contact between patients and service personnel. As the use of private rooms is on the increase, there is an immediate danger of isolation. The feeling of individual treatment and personal contact is hardly possible any more; it is giving way in certain cases to an impression of barracks in which the patient is but a number.

The study of these drawbacks, at times very grave, brings us to the following principles and conditions bound up with planning:

1. The lack of personnel obliges us to create a type of ward that is concentrated

and clearly organized. In this way personnel movements are sharply reduced. This organization can obviously be improved still more thanks to technical innovations such as pneumatic postal delivery, microphones, centralized installations and perfected distribution, etc.

2. The type of plan selected ought to permit all the variations that are imaginable and possible in accordance with the desires of the patient themselves and medical requirements; it is therefore necessary to achieve perfect flexibility even in the case of specialized clinics.

3. Each clinic unit ought to be clearly conceived as a total complex and consequently permit the proper nursing and working atmosphere desired by patients and staff alike.

The drawbacks of the conventional bilateral type of ward and the principles to follow have been recognized for some time, and thus it will be possible to present some examples and basic principles involved in hospital planning. We cite only a few salient cases:

#### The trilateral type of ward

This type, which is represented by the scheme in which sick rooms are placed facing out and the service premises are aligned toward the inside, can be realized in two different ways:

1. The ward is arranged in such a way that all the patients' rooms are set in two groups on the longitudinal elevations, the service rooms being sited in the body of the building between these two groups of rooms. This system makes for a certain improvement from the point of view of movement and of the concentration of functions and volumes constructed. On the other hand, the corridor percentage (two corridors), i.e. space lost, is too high and, in addition, this principle of separation is uneconomic and is not practical as regards organization (cf. ill. 4).

2. The other type also has all rooms along two sides, but the service rooms, likewise within the body of the building, have been constructed for the two sides jointly (cf. ill. 5). In principle, this arrangement does not allow for any cutting down on movement, as it has the same length as the current bilateral type, since all the rooms are sited one facing the other.

On the other hand, it is certain that the trilateral type—where all the service rooms are set inside—corresponds in no wise to the needs—above all, the psychological ones—of the staff. The nurses, too, wish to be in touch with the outside world, and this is impossible in the trilateral system we have just described (all the service rooms being "blind" on one side). This inadequate solution must, therefore, be dropped.

#### Ward with Square Plan (cf. ill. 6)

This solution, which appears to have been recommended recently (at least in certain cases), consists in either a circular or horseshoe arrangement of patients' rooms around a central service core. The floor is made up of a number of clinical complexes, the organizational clarity of which is noticeably greater and the movement involved less than in the case of the ordinary type. However this type of ward cannot be "enlarged" at will. Only vertical development is practically unlimited—except in certain particular cases. Night service, for example, is much more difficult in the case of a high-rise clinic. The solution offered by this type of ward is, therefore, not generally valid.

#### Compartmentalized Ward (cf. ill. 7)

This system is mainly used in England and France. It involves the old form of common ward divided up by light partitions according to the needs of the moment. As it is thus more difficult to find space for the secondary service rooms, these are usually sited in an intermediate section between two wards. Obviously enough, this does not cut down on staff movements. The solution offered by this type of ward is only valid in certain cases and therefore cannot be made a general practice.

#### Proposal

Bearing in mind all the examples and principles we have just described, we propose a very economical type of ward based on the conventional bilateral system (cf. ill. 8). The internal siting of service rooms in average use allows for a considerable reduction in movement. A working area—instead of the separating corridor—sets up in this case an atmosphere which has some intimacy and organizational lucidity. The more frequently used service rooms, however, are all arranged along the elevation for the psychological reasons we already know of:

ward nurse's room, kitchenette, staff doctor's cubicle, etc. In order for the patient to receive individual treatment the ward is divided into several clinical complexes, the size of which is such that there can be one nurse per complex. In this way individual treatment is guaranteed and, moreover, each nurse is thus able to give full rein to her abilities and sense of responsibility in a clinical complex where she is sovereign. The example we are offering here gives a schematic presentation of one of the ways in which the load may be distributed. Depending on the sick cases, each clinical unit may range from 4 to 12 beds using room-units of 1 to 3 beds. This reduced distribution seems to create the intimate atmosphere desired. The distances between the nurse's area and that of the patients are extremely short and this makes impeccable supervision and individual service possible. Depending on the case (children, the dying, etc.) appropriate supplementary glazing will make for even closer supervision while at the same time respecting acoustic demands. The decentralization of the toilets will make it possible to cut out the long treks from the patients' rooms to the lavatories.

This division into small clinical complexes will free the ward nurse from a number of petty tasks that are not absolutely indispensable. For this reason she will have an even greater margin of time at her disposal for the young nurses and the staff doctor's work. It is quite clear that this reasoning and these assessments cannot claim to be all-embracing in their scope: they are merely the product of personal study in this field.

The economic criterion of the new type of ward has been checked with the help of frequencies and distances in relationship to utilizable surfaces per bed. The distance study has been carried out in accordance with the method of Dr. H. B. Lewicki of the Berlin Technological Institute (Institute for Hospital Construction; see "The Hospital," Issue 7/1956). The few sketches in this issue are only brief schemata. The following figures will, we think, be sufficient to enable one to gather some idea of what is involved:

#### Total of Distance Travelled

##### Patient's room—sink—nurse—kitchenette:

illustr. 9	illustr. 10	illustr. 11
31.58 m	26.08 m	20.55 m
per bed per day		

#### Distance (frequent movement)

##### Patient's room—nurse—sink

illustr. 9	illustr. 10	illustr. 11
20.80 m	19.64 m	10.79 m
per bed per day		

The nurse's comings and goings are divided into 50% nurse's service room and 50% nurse's working area. Depending on the siting of the various service rooms, we believe it is still possible to cut down on the distances covered.

#### Another table:

illustr. 12	illustr. 13	illustr. 14
<b>Total</b>		
504 m <sup>2</sup>	492 m <sup>2</sup>	542 m <sup>2</sup>
<b>Room-beds</b>		
270 m <sup>2</sup> =54%	270 m <sup>2</sup> =55%	266 m <sup>2</sup> =49%
<b>Service rooms</b>		
130 m <sup>2</sup> =26%	129 m <sup>2</sup> =26%	172 m <sup>2</sup> =32%
<b>Movement</b>		
105 m <sup>2</sup> =20%	93 m <sup>2</sup> =19%	103 m <sup>2</sup> =19%

It should be noted that the surface movement in ill. 14 has not increased. An increase in the total surface is caused by an enlargement of the necessary service rooms. The surfaces of these rooms will certainly be insufficient in the case of ill. 12.

#### Philip Powell and Hidalgo Moya Hospital in Swindon (pages 76—81)

The building in question is one of the largest hospitals to have been built since the war. It is for this reason that it has caused keen interest among specialists. Two basic principles are characteristic of this project:

1. Each hospital department may be enlarged independently.
2. The interior of each department may be re-arranged at will depending upon the circumstances. Modern medical science demands the greatest possible elasticity of plan.

Gollins, Melvin and Ward

### Fracture Clinic (pages 82—85)

Bone fractures of all types are treated here. The surroundings resulting from the hospital already in existence are not particularly fortunate. The hospital in question is also a university clinic.

Paul La Mache

### Sister Building to the Nancy Maternity Hospital (pages 86—87)

The building in question is made up as follows:

1. Consulting-rooms. 2. Offices and waiting-rooms. 3. Midwives' consulting-rooms. 4. Lecture room and files.

The pavilion in question of the "Office de l'hygiène sociale" is near the Nancy maternity hospital. It has been specially set up for external consultation.

Charles Luckman and William Pereira

### Valley Presbyterian Hospital (pages 88—90)

The case in question envisages patients' beds alongside the corridor. The view outside, it would seem, is of no interest, at least, not to the patients. This new arrangement of beds obviously leads to a radical change in organization and, hence, in plan. This example goes to show how necessary the continual revision of ideas and theories is.

Frederick A. Stahl

### Consulting-room for two surgeons (pages 91—93)

The building in question, at Danbury, Connecticut, U.S.A., was planned to be carried out in reinforced concrete; an inexplicable prejudice on the part of the clients, however, led to the architect having to use wood and stone.

Richard J. Neutra

### Some Observations on Hospitals (pages 94—96)

We know that profound relationships exist between man and his environment. It accordingly appears all the more vital that the surroundings of the "sick" be particularly carefully studied. Moreover, a patient can only be adequately looked after if the members of the staff are "in form." Hospital surroundings are, therefore, characterized by their having spatial features of dual aspect, and it is this duality that makes the problem yet more difficult. Any architect who wishes to handle these problems fittingly will find himself obliged to bear two main points in mind: on the one hand, it is necessary to make an "objective" study of real features which are generally valid for everybody, on the other, he must study the "subjective wishes" of the various people involved. As in all real architecture, planning must commence with an absolutely accurate survey of the data and needs. It is only by means of this study that the architect is able to find the "right design," that is to say, the design corresponding to the "right function."

A humourist once said, "A doctor is a man who hands out medicine which he doesn't know much about to people whom he knows even less about." What can we say about the architect? Is it not possible that his task is even more complicated?

Arne Jacobsen

### SAS Hotel and Air Terminal in Copenhagen (pages 97—112)

It may be said without any trace of exaggeration that never before has so much study gone into a building as this: on one hand, town-planning surveys, on the other, detailed studies (right down to the ashtrays even!). Worthy of particular attention is the fact that traffic problems have been solved remarkably well, e.g., the car parks have been set in their entirety underground. This is the only possibility left open in the case of a town centre. Shops, air terminal, hotel lounges and restaurants have been set in the two-storey building. The hotel rooms are in the point blocks. As regards the latter, we should not fail to observe that Jacobsen has devoted considerable attention to the study of the colours and formal properties of this building, as its site (in the centre of Copenhagen) made it necessary that the skyscraper with its by no means negligible height (70 m.) should not create all too "crushing" an impression. It is for this reason that the colour chosen for the windows was grey-green, which by fusing them with the sky and clouds makes the building appear much less massive and considerably lighter.