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### HOSPITALS IN SWITZERLAND.

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(The following is reprinted from the February issue of the "Lancet," by courtesy of the Editor.)

Switzerland is a small country with a population of only 4½ million; but it lies at the heart of Europe and has an industrious and inventive people. Its professional and technical leaders, bilingual if not multilingual, are by tradition heirs of the learning and participants in the practice of their great neighbours, Germany and France. In the work of hospitals and their planning and construction, leading doctors and architects have in recent years made a study of developments in Scandinavia and know the literature of the United States and the United Kingdom. They seek out what is best in other countries with independence of judgment, and their opinions are worthy of attention.

### DISTRIBUTION AND OWNERSHIP.

The Swiss Confederation is not strongly centralised. The former sovereign bodies which are thus loosely united — the cantons and half-cantons, 25 in number — with sturdy independence have retained most governmental rights and duties. The federal government has no health services and no hospitals. In its statistical yearbook it does, however, give a summary of the total hospital resources of the country. The last available issue in which the hospital tables are included, that for 1944, shows that in 1942 there were 535 institutions classified as hospitals with 22,000 sick wards containing nearly 64,000 effective patient beds and over 4,000 more in reserve. Other tables give the number of sick persons and of days of sickness under cantons and towns, and hospital personnel of different classes. One interesting table classifies the sick wards according to the number of contained patient beds, showing a high proportion of one-bed and two-bed wards.

The Swiss hospitals are owned by the cantons, the communes (cities and towns), and voluntary foundations. The cantons have one or more cantonspitals at the main centres; thus Zürich has a university cantonspital in the city of Zürich (population 380,000) and one other at Winterthur, a neighbouring town of 60,000 population. Out in the country are district hospitals provided by the cantons. The hospitals of the larger towns are independent of the cantonal governments. Voluntary bodies may provide the greater part of the local hospital service; an example of an ancient foundation is the Inselspital at Berne, which now has buildings belonging to the canton and to the city.

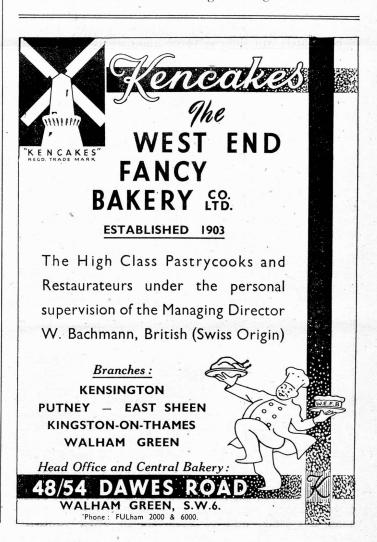
Switzerland has 7 universities — 3 with instruction in German (Zürich, Basle, and Berne), 3 with instruction in French (Geneva, Lausanne, and Neuchâtel), and 1 bilingual (Fribourg). The first five named have medical faculties, and to foreign visitors the university hospitals make a special appeal since they posess the most comprehensive facilities and are at this time planning important new buildings. The proud tradition of self-sufficiency of the cantons demands that each of the 5 university hospitals is staffed and equipped to deal with all the rarer specialties, including radiotherapy, neuro-surgery, and thoracic surgery, although in more populous countries

the hospital planner would now restrict these departments to larger populations. The university hospitals and other large hospitals in the bigger towns do, however, serve as hospitals of reference for the people of the cantons which have no large towns and no complete medical centres.

### SOME NOTABLE HOSPITALS.

The Bürgerspital, Basle, has attracted much notice from foreign observers because of its new medical and surgical block, one of the most striking in Europe, which was begun in 1939 and completed in October, 1945. This great building has 650 beds on seven patient floors, for to conserve the garden it was necessary to build upwards; in the judgment of some it is too large for the full play of personal values. Of much interest are other features such as the separate ground-floor kitchen, the system of underground tunnels through which electric motors haul trains of food trolleys from the kitchen to the various blocks, the diet restaurant for outpatients attached to the diet kitchen, and the supply of hot water at 180°C from the city refuse destructor 2 km. distant. The replacement of several other buildings is projected, and when completed the hospital will have about 1,050 beds.

The Zürich University Cantonspital is another centre of pilgrimage, standing on a site in the city abutting on other important university buildings. Here the newest and most interesting building is that for the



policlinics for general medicine, ear, nose, and throat diseases, opthalmology, neurology, and psychiatry. A new medical and surgical ward-block and a ward-block for special departments are projected. The ideas determining the uses and relations of the main buildings and their working-out on the site by addition and replacement are instructive. This has long been a famous Continental hospital.

At Winterthur the second Zürich cantonspital now has 400 beds. Here there is an ambitious programme of additions and replacements estimated to cost over 40 million Swiss francs.

The Inselspital, Berne, is a fine old hospital of 850 beds; the many separate buildings occupy an extensive site of, 129,000 sq. m. The pavilions show the course of hospital planning in Switzerland, for they were erected during three eras — 1882-86, 1896-1923, and 1924-36. The recent construction includes a large surgical block and a fine four-story building — the Loryspital — with 120 beds on two floors for the treatment of chronic diseases. A new medical policlinic building is projected.

The Geneva University Hospital has main buildings nearly 100 years old. An ad-hoc commission has presented a report describing a number of alternative projects for the extension and replacement of the hospital buildings, which take account of recent experience at Basle and Zürich as well as in foreign countries. An existing feature of interest is a separate division of the hospital in a building off the main site, known as the Hôtel Beau-Séjour. Set in pleasant grounds, this has 250-300 beds and is used both as a recovery hospital and for insurables with rapidly advancing disease; Dr. J. J. Moser states that it is the first annexe of its kind attached to a major acute hospital in Switzerland.

Other important hospitals of general or special interest could be named, such as the cantonspital at Lucerne, but these examples will suffice to show how actively new buildings are being planned and provided at main medical centres.

### PRINCIPLES OF PLANNING.

The earlier Swiss hospitals were built by men who were familiar with the German and French practice of the day and who adopted the pavilion style with its number of low buildings, spacious construction, general use of the corridor system, and laterally placed multi-bed wards of varying size and treatment rooms in the ward units. Under German influence the university hospitals were organised in separate "clinics" for medicine, surgery, gynæcology, and pædiatrics, each with its own chemical and biological laboratories—for current work, for research, and to some extent for the teaching of the student.

The older hospital buildings conform to the general Continental pattern. But the better-known hospital planners in Switzerland to-day — both doctors and architects — are familiar with those trends in hospital planning which find their full expression in America. They are as well-informed on the newer principles of hospital construction as authorities in North America, in Scandinavia, and in this country.

At one end of the gamut of hospital design stands the monoblock of some American city hospitals. At the other end stand the many clinics and supporting buildings in ample grounds characteristic of the older German hospitals, and of hospitals in other countries modelled upon them such as the university hospital at Lünd and the city hospital of Malmö in South Sweden. The Swiss hospital planners dislike the rigidity of the monoblock, but they are sensible of the inconveniences of the full pavilion system. Accordingly modern hospitals in Switzerland show varying forms between the monoblock and the pavilion systems; and as individualists the Swiss incline towards variety rather than uniformity. They favour a functional and mobile conception of planning with freedom for the hospital to adapt itself to changing needs and to grow, rather than a monumental and static conception.

Dr. Fietz, the architect of the university hospital in Zürich, uses the symbolism of a bunch of grapes to express the ability to grow, the variable form, and yet the unity of the parts which should characterise the buildings of a living hospital. The structure must also reflect the functional arrangement which individualism demands, that authority should be spread amongst a number of professional chiefs so that "each department can be a little empire." Thus they chose to limit strictly the number of beds for which even the major clinical professors are responsible, in that respect preferring the French practice to that in Germany where the professor may have up to 300-400 beds in his department. Rejection of this German habit springs from fundamental dislike of concentration of power determined on logical or ideological grounds, which in the professional world leads to personal friction.

The emphasis in organisation, which is reflected in structure, is on clinical rather than on administrative values. Thus the Swiss hospital planners do not readily

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accept the weight of argument put forward in America to justify vertical rather than horizontal construction. They reject the claim that vertical transport is more advantageous than horizontal transport; for, although it may be so from the point of view of the business man, they argue that it is not so from the professional point of view. Greater regard is paid to what will help the medical staff to work best for the patients than to what appeals to the hôtelier or hospital accountant as the most efficient method of organisation. More care is given to the arangements for the medical supervision of the ward than has been customary in North America and in this country. Thus they prefer that each department under one chief should be as far as possible on the one floor for ease of supervision "with the eye." The size of the ward unit should be what one junior doctor can manage — " the spirit of the unit should be of the doctor." Fortunately this is found to be about the same size that is convenient as a nursing unit. In the medical clinics the number of beds would then be about 24; in large hospitals four such units would be supervised by a chief of clinic, and eight would form the whole department under the professor or clinical director.

### PLANNING IN PRACTICE.

The large hospitals are in the towns, for the Swiss hold that hospitals should be near the people to be served, and if university hospitals then near the university. The towns are not large (the only city with substantially over 100,000 people is Zürich); they are not smoky since electric power is largely used and there is little heavy industry; and they are not so covered with

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buildings as is common in this country and in North America. The Swiss, as becomes individualists, do not believe in very large hospitals.

The sites of hospitals were at the time of building generally ample, and when modern requirements call for more or greater buildings, they find, as at Zürich, Winterthur, Basle, Berne and Geneva, that the balance of advantages lies in replacement and extension on the site rather than in building new hospitals farther from the centre. The hospital boards are not deterred by the inconveniences attending replacement, and it seems that the hospitals continue to work without interruuption, since in each case the first stage is an extension which can take over the functions of the building next to be demolished, and so on, step by step.

The point of compromise between the dispersion in many pavilions and separate clinics of the old system and the concentration in monoblock or single articulated building of the steel-and-concrete era is consequently in part determined by the position and character of the existing buildings that are to be preserved as well as by the physical characters of the site and its surroundings. Thus at Zürich and Basle there will be separate buildings for the main wards (medicine and surgery), the special-department wards, the policlinics, the domestic services, and staff quarters, for the most part linked roughly in quadrangular form; and the same is planned at Winterthur. For Geneva the expert commission, having examined proposals of eleven different firms of architects under the headings of town planning, functional organisation, arrangement of departments, and architecture, recommend an articulation of buildings in "T" form which fits the site and which is built up of similar main units, each planned with its own outline.

It is a cardinal principle of Swiss hospital planners that a different outline is required by buildings for main wards, for special wards, and for hospital personnel; therefore it follows that they seek to break up the hospital on the horizontal plane into a number of buildings, whether these be separated, or linked around quadrangles, or tied together by a central spine. (The same principle has been worked out by American architects in the vertical plane in such elegant tiered massifs as the Medical Center and the Cornell hospitals in New York City.)

The functional conception of construction is not incompatible with the concentration of engineering ser-

vices in each building, and a proper regard for stan-Standard structular elements, such as were found so serviceable in this country during the war for hutted construction, are much employed. Such elements can serve very varied uses and do not restrict flexibility of design. Standardised service installations and standardised furniture and equipment are all favoured and developed with ingenuity. An example of enterprise in a main engineering service is the heating system of the Zürich university hospital. Heat is abstracted from the river Limmat by a heat pump and conveyed 2 km. to the hospital by water at a temperature of 180°C; a remarkable feature is that it is possible to obtain from the system some three times the heat which is put into it in the form of power to operate the pump.

The ward-blocks are generally designed on the central-corridor system, with patients' rooms on the south and service rooms on the north. Light and ventilation of the corridors are secured by bays between the latter, and some of the construction would satisfy the most fastidious British critic used to large cross-ventilated wards. The largest wards are for 6 or at most 8 patients, and there is a good proportion of smaller rooms. For example, the drawings for the new main ward-block at Winterthur show units of three 6-bed, four 2-bed, and one 1-bed wards, making 27 beds in all. Each unit has its own treatment room and each pair of units a dayroom. The other service rooms are much as in this country. The Swiss do not like plumbing



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between bedrooms, and the "sub-utility" rooms between small wards of contemporary American practice are not found, nor are automatic bedpan-flushing cabinets commonly installed.

#### THE POLICLINICS.

The policlinics of the university hospitals must interest every visitor who is studying how the investigation and treatment of ambulant patients can be improved, how hospital beds can be protected from needless admissions, and how patients can be spared the "tragedy of hospitalisation" — to use the words of Prof.P.H. Rossier, director of the Zürich medical policlinic.

The policlinic is the clinic of the town. (A term with a different etymology — polyclinic — has come into use in the English-speaking countries to describe a place for many people or diseases). To the policlinics go those townspeople who cannot, or will not, get advice and treatment from private medical practitioners. Historically the policlinic is similar in function to the dispensaries for the sick poor from which treatment may be extended to the homes. At Zürich some 500 persons are still treated each year in their homes from the university policlinic. The work of such a Continental centre may be compared with that of the famous dispensaries in certain of the older American cities, such as that established at Boston in the year 1796 which still retains a much larger domiciliary practice. In this country the outpatient departments of many large city hospitals have provided immediate medical treatment for similar classes of the townspeople, but rarely domiciliary treatment.

The policlinic now performs two other important functions in addition to that of immediate treatment: it serves increasingly as a centre for consultation for patients referred from other departments in the hospital, and for patients sent up by medical practitioners from outside the hospital. There are separate policlinics for the major clinical branches which vary in their relation to the corresponding wards. The medical policlinic is the most important because it deals with the whole range of general medical disorders, has a much more detailed routine for investigation of patients, and is organised as a department separate from the inpatient medical clinic. It may have beds of its own for patients to stay one or two nights to facilitate investigation. The surgical policlinic is much smaller and is close to both casualty department and surgical wards. There are also policlinics for diseases of the ear, nose, and throat, for ophthalmology, and for neurology and psychiatry; these are closely associated in space and functionally with the corresponding inpatient departments. Gynæcology with obstetrics, and pædiatrics have also their own policlinics.

At Zürich the great new policlinic building is of four floors. One whole floor is occupied by the medical policlinic. At one end are the rooms for waiting and routine examination of patients; next come the rooms with laboratories and cubicles for special examinations; then come the director's rooms; and at the other end are the research laboratories. Above is a ward of 26 beds, which is an integral part of the medical policlinic. The ear, nose, and throat and eye policlinics, with similar rooms appropriate to their needs are also on upper floors, and connect directly with the wards of the same departments so that the examination and operation suites can be used in common. Below are the

neurological and psychiatric policlinics, and rooms for common services including the dispensary, for social workers, and for student teaching.

The medical policlinic is designed for the following operations in sequence: (1) reception and waiting; (2) recording of general particulars, routine examination of urine and taking of blood for Wassermann reaction and sedimentation-rate by nurses; (3) history-taking and physical examination by a medical officer (acting under the director) who remains thereafter the patient's "doctor"; (4) routine screening of the chest by the patient's "doctor"; (5) special examinations in the hæmatological, bacterological, physiological, and other laboratories as may be required.

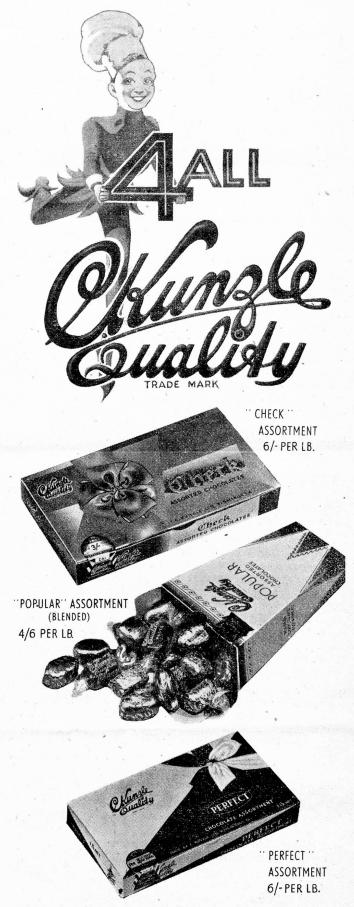
The rooms are arranged compactly and in sequence for ease of circulation so that the patient passes directly to the next person and is not bewildered by being sent distances about a large institution. waiting-hall, of moderate size, is divided centrally into sections for men and women, and from here the patient passes immediately to the history taking nurses' room, and thence to one of the 16 medical officers' rooms, 8 on each side, next to which suite is the X-ray screeningroom. The laboratories for routine urine and blood tests are in the centre at the end, beyond the waitinghall and between the two series of medical officers' rooms. These medical officers are men (or women) who have been qualified at least four years and have already had approved hospital training and are, for the most part, going on to be general practitioners. Students in the medical school take no part in the work of the medical policlinic, except that the professor gives systematic teaching on selected patients in the well-equipped lecture hall in the building.

Professor Rossier states that approximately 90% of the medical patients referred by outside practitioners are fully investigated and diagnosed, and the large majority of these treated without admission to hos-(Inquiry shows that approximately the same proportion can be dealt with effectively at medical outpatient department in this country, but only in those that are strongly staffed and have the necessary specialist facilities.) The medical policlinic is not organised in separate "speciality" clinics since they seek to treat the patient and not the organ. Should the physician want information only to be obtained by some special procedure (such as bronchoscopy or cystoscopy) he would refer the patient to a member of the staff known to be technically expert at a particular method of examination. Similarly, he would show individual patients to members of the medical team having special interest in such cases. But the general physician would remain in charge and the patient would not be passed to a special cardiological, gastroenterological, diabetic, rheumatic, or other such clinic and thus become detached from the main current of medicine.

### OUR NEXT ISSUE.

Our next issue will be published on Thursday, March 25th, 1948.

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