

MICHIGAN'S CONTRIBUTION TO PUBLIC HEALTH

By HARLEY A. HAYNES, M. D.

Director of the University Hospital

THE early days of the Autumn of this year saw the finishing touches on the new University Hospital.

The building of this has occupied several years—the delays in construction have been due to many causes, the chief of which was the distraction and general upset incident to the Great War.

Important as we deemed this addition to our State Institution, and much as we regretted the frequent interruptions, no forward looking person had more than passing regret, for the decision that carried the conscience of America into an unsought and unwished for conflict was so lofty in sentiment as to commend it to all mankind, and it was like the heart of this great State to set aside even the caring of her own sick and needy to rally to the support and help share the greater burden of sorrows of her cousins across the sea.

But here at last this magnificent structure stands, not indeed a pile of architectural splendor, nor a monument in glorification of the subjugation of a people, nor to commemorate any personal triumph, but rather as a testimonial that the great heart of the people of Michigan has accepted not as a high-sounding phrase, but as a central and abiding philosophy of life the belief, that they are their brother's keeper.

The hospital today is a vitally important institution deeply rooted in the family and civic life of the American people. Originally designed only for the care of the sick, it is becoming more and more a community health center, influencing as no other agency the well-being of the public.

Hospital authorities are practically agreed that in order to meet the demands for hospital service today there should be a minimum ratio of one active bed to every 150 of population, depending of course on local conditions. The University Hospital, including both active and con-service, will provide about 1,100 beds, or a ratio of 1/3300 of the population of Michigan.

The hospitals are educational centers with branches all over the country. In these schools more young women are studying the profession of nursing than are enrolled in all the universities and colleges. That these influences are not futile there is abundant evidence. In support of this, it is only necessary to mention that largely through the aid of hospital and allied activities the average length of life has been increased twenty-one years during the

generation just past, and, without a doubt, a similar period will be added in the next fifty years.

That the hospital has a double function, keeping well people well and restoring the sick to health, are among the reasons why the hospital idea has been universally accepted by the American people. Restoring the sick to health, while originally the only function of the hospital, is more and more being supplemented by the service of keeping well people well, and all over the country hospitals are taking active leadership in health educational work. The recognition of the importance of adequate hospital service, both in cities and rural communities, is ample and logical reason for present advancement.

The rapid development of the hospital field within the past few years will undoubtedly continue over a considerable period. The hospital facilities of the country, particularly in outlying regions, must be greatly increased in order to meet the standards of hospital service. The magnitude of the hospital field, expressed in terms of daily population and expenditure, is a surprise even to those closely connected and intimately familiar with hospital service in this country.

Over 1,250,000 people must be housed, fed and cared for each day, involving an expenditure in excess of \$3,000,000 each working day or over \$1,000,000,000 annually. This year the new construction and equipment program represents an expenditure of over \$300,000,000.

There are in service in the United States and its possessions about 8000 hospitals and sanitoriums. It is interesting to note that as recently as 1873 there were only 149 hospitals in this country. The increase since that time has been 4,661% in the number, and 3,162% increase in the bed capacity and a population increase of but 174%.

There are, in Michigan, 273 hospitals and allied institutions, representing a bed capacity of 30,551—206 hospitals are for acute service, providing 22,737 beds, or 1-161 of the population.

Now, what is the function of this Institution? Broadly, it is operated in the service of the people of Michigan. And how does it function? The people of this state and country need doctors and nurses to care for them in their sickness and sorrow. This hospital is so equipped as to afford every opportunity for the adequate training of doctors and nurses in order that we may supply that demand—

and not only does it help to train doctors to send out for service in all parts of the country, but it provides their return from time to time so as to keep them in touch with the more recent advances in medicine and surgery to the end that even the most isolated community and the humblest citizen may have the privilege of the latest and best that science has to offer.

In addition to this, it helps care for the sick. Many communities are still without hospital facili-



THE NEW UNIVERSITY HOSPITAL

ties—only about half of the counties of this country are provided with hospitals—many doctors are handicapped by lack of equipment and the facilities necessary to diagnose difficult conditions. To both of these calls, we are prepared to give help; and yet with all the wonderful advancement that medical science has made, the sad fact remains that the causes of many diseases are still unknown and many still remain incurable. So that it seems fitting that with the opportunities afforded by this great organization, we should undertake the development of research—should set aside certain time and equipment for the investigation of those problems the causes of which are still unknown, with the hope and prayer that our children and our children's children may be spared much in the way of sickness and suffering that has come to so many of us.

Should we forget the patient after he has left the hospital? We fail to get full value of this expenditure unless we follow the patient after his discharge from the hospital, not only for the purpose of conserving his health, increasing his intelligence in health matters and preventing recurrent illnesses, but also for the purpose of getting and correlating worth-while statistical records on the results of our methods of treatment. It certainly is a distinct advantage to the staff of the hospital to maintain a complete record of the final results of the patients' treatment. Should we not know how the broken-down human machine fared after the re-

pair in the hospital and how long it remains repaired?

Follow-up methods and periodic examinations of their machinery or products are now an established practice in commercial institutions and manufacturing plants. This is done to forestall unnecessary expense, accidents and sometimes loss of life. All automobile owners know of the monthly inspections conducted by all automobile concerns. Why should not we, in a similar manner, conduct periodical examinations of the human machines that are being repaired daily at our plant at such an enormous expense?

Let us consider first the function of the hospital to the community. It performs a definite service. By affording facilities to the medical profession, it enables them to give a higher type of service; to care for the sick, crippled and injured members of its society and teach them how to keep or regain health.

Every community in the state demands certain hospital service. To what extent are our hospitals filling this demand? Every hospital director ponders over this question repeatedly, for as the community grows the hospital should also grow.

To meet this demand hospitals have come into existence in various ways. Physicians who have been hampered in their work by lack of facilities have built their own hospitals. These usually have a very limited bed capacity and the service limited to a specialty.

Industrial concerns called upon to render service to their employees have established institutions. This service is usually limited to accident cases, although frequently it is extended to include general care to members of employees' families.

Philanthropic and charitable organizations and individuals have built and endowed hospitals to render various services. Some of these are unrestricted and offer general hospital service to the public at large; others are limited to the care of children, maternity cases or research in specified diseases.

Religious organizations have established hospitals which usually render general service to the community in which they are built.

But, in addition to these, our cities, counties and state have, through necessity, been called upon to operate institutions for the unfortunate members of its society. General Hospitals, Contagious Hospitals, Tubercular Sanitariums, and institutions for the blind, deaf, feeble-minded and mentally deranged, have been established.

Our University Hospital does not come under any of these classifications. Its original purpose was to provide teaching material for the medical school of the University. By acts of the legislature,

Continued on page 25

MICHIGAN'S CONTRIBUTION TO HEALTH

Continued from page 18

indigent patients may be sent to the University Hospital for care.

The new building is the result of a natural growth. You will remember when the University Hospital was comprised of but one building. Additional units were added from time to time to keep pace with developments in the science of medicine and the increasing number of patients. But, like those before them, they finally became inadequate and the new building became a necessity.

What is expected of this new building?

First, we hope that the teaching material will be used to its fullest extent. To accomplish this, we have provided demonstration rooms in each diagnostic service and on each patient's floor. We have established a central record room where all patients' records will be housed. Cataloguing and statistical work will be done under the supervision of our hospital librarian.

The main amphitheatre, with a seating capacity of 200, the pathological amphitheatre, with a capacity of 100, and several lecture rooms and laboratories, provide facilities for student lectures and recitation classes.

Second, we hope that the service rendered the patient will be of the highest degree. This has already been accomplished to a marked degree. All the advantages of a new and modern building lead directly to better service for the patient. All wards have an outside exposure and are light and cheerful. Sun porches off each ward are equipped to increase the comfort of the patient. Each ward unit is also provided with a nurses' utility room, diet kitchen, laboratory for routine work, and a treatment room. Nurses' rest rooms are provided on each patients' floor and operating room unit, so that nurses taken ill while on duty may be properly cared for. Consultation rooms are provided on each floor, so that the medical staff may retire to discuss their cases requiring consultation and to interview patients' relatives.

Bacteriological, serological and pathological laboratories render service to all patients.

Our new nurses' home affords better living conditions for the nurses in training, with the result that better and more cheerful service is given the patient.

Third, that the research laboratories will help solve some of the problems confronting the medical profession, laboratories and animal rooms have been equipped with standard equipment and have been specified as reserve laboratories. These will be used from time to time when various research problems present themselves.

Let us think of this great hospital as a magnificent institution set aside for the service of the sick and suffering, for the advancement of learning and a monument to the intelligence and the heart of the people of Michigan.

IRON AND STEEL

Continued from page 19

carbon, usually containing substantial quantities of manganese.

Following this classification, such a material as Armco Ingot Iron may be further defined as "ingot iron" produced in an open-hearth furnace and containing not more than 0.02 per cent carbon and not more than 0.035 per cent manganese.

If, accepting my nomenclature, it is asked that a line be clearly drawn between ingot iron and steel, I venture to recall that ingot iron as here defined differs sharply from the mildest steels in regard to their respective manganese contents, which in ingot iron should not exceed 0.05 per cent, while steel seldom contains less than 0.20 per cent.

Again, ingot iron should not contain more than 0.03 per cent carbon, while steel seldom contains less than 0.05 per cent of that element.

Between a metal containing not more than 0.03 per cent carbon and not more than 0.05 per cent manganese and a metal containing not less than 0.05 per cent carbon and not less than 0.15 or 0.20 per cent manganese or even, in exceptional cases, as little as 0.10 per cent, there is a wide gap by which ingot iron and the mildest steels can readily be chemically differentiated.

Ingot iron, moreover, because of its extremely low percentage of manganese, unless indeed it contains considerably less than 0.02 per cent of sulphur, is red-short within a certain range of temperature, whereas low-carbon steel, owing to its much larger percentage of manganese and although it may contain considerably more sulphur, is free from red-shortness.

In the absence of the thermal critical point A_1 , when iron contains less than 0.03 per cent carbon and in the absence of pearlite in its micro-structure, we might find an additional means of distinguishing between ingot iron and mild steel.

A sound and rational nomenclature of our ferrous products is of importance alike to producers, to consumers and to scientific men interested in the metallurgy of iron and steel. The problem should be approached in a spirit of service and of fairness devoid of commercial considerations of technical sophistry and of ingenious attempts at begging the question.

—Chemical and Metallurgical Review.