Roof shelter at the "Dreadnought" Hospital, Greenwich.

THE OPEN-AIR TREATMENT OF TUBERCULOSIS.

THE "DREADNOUGHT" HOSPITAL, GREENWICH.

By GUTHRIE RANKIN, M.D., Physician to the Hospital.

THE wide interest which within recent years has been aroused by the treatment of phthisis and other tuberculous affections by the open-air method first introduced by Brehmer at Gorbardsdorf, has opened up a large question as to the extent to which it may be made available in large hospitals. There are reasons to fear that so far as private enterprise is concerned the number of homes established all over the country for the application of this method of cure to those who can afford to pay for it is in some risk of being overdone; but for the poor, from whose ranks the majority of tuberculous cases spring, the facilities for treatment are still quite inadequate.

Should the results justify the institution in large hospitals and infirmaries of open-air wards, the time will no doubt soon come when the benefits to be derived from this system of management will be available for a large number of patients who at present can only be accommodated in the general wards, where they fail to obtain all the advantages derivable from rest and food, because of the lack of sufficiency of fresh air.

Attempts are now being made in several metropolitan and provincial hospitals to establish phthisis wards with attached facilities for treatment in the open air, and we propose, from

time to time, to call attention to the results that are accruing from this laudable endeavour to bring the latest curative method within the reach of those who most require it. It is obvious that the more successfully this greatest of all our human scourges can be dealt with the better must it be for the future vigour of the race, and, from the economic point of view, the cheaper must it ultimately prove for all our great medical charities.

The Governing Board of the *Dreadnought* Hospital at Greenwich agreed in the autumn of 1900 to tentatively apply Brehmer's methods to a limited number of cases of phthisis. The hospital is built with flat roofs and a suitable space on the most accessible part was chosen for the accommodation of cases. One large and two small movable shelters were erected, the former capable of accommodating ten patients and each of the latter one. They are placed so as to face west-south-west, and are open in front from top to bottom. They are provided with blinds which can be raised or lowered as required; these serve to keep out the rain in wet weather, and are useful as sunshades in summer. Four small wards, each with accommodation for three patients, have been furnished on the top floor of the hospital, and from them there is easy access to the roof by a short flight of stairs. In these wards the windows and ventilators are pinned open to their fullest extent, and not allowed to be shut day or night. The patients occupy the shelters from early morning till sunset, and are all kept in

the recumbent position from 7 to 9 A.M., from 1 to 3 P.M., and from 5 P.M. till bedtime. Those who are sufficiently well are compelled to take suitable exercise in the intervals between those hours, but in all cases where there is pyrexia the patients are kept continually lying down till it subsides. They are very liberally fed, and have one ounce of cod-liver oil daily whenever the digestion is strong enough to deal with it. Guaiacol is given in five-minim doses night and morning, and by inhalation at midday. No other drug is used unless in cases where cough is troublesome, when heroin in doses of $\frac{1}{2}$ gr. is resorted to.

The shelters were first occupied on October 30th, 1900, and during the year ending October 30th, 1901, 45 patients were admitted; 11 of these still remain under treatment, leaving a balance of 34 cases which have been dealt with. There have been 6 deaths; 5 occurred in patients in an advanced stage of disease, with both lungs involved, when the treatment was begun. The sixth died suddenly of hæmoptysis, and he, too, was an unfavourable case; because, though only one lung was implicated, his larynx was also the seat of tuberculous mischief. The results, as applied to the remaining 28 cases, will be most readily appreciated from a glance at the following table, which represents their condition at the time of their discharge:

	Worse.	In Statu Quo.	Improved.	Greatly Improved.
Number of patients	4	10	6	8
Average loss or gain in weight ...	$-4\frac{1}{2}$ lbs.	$-\frac{1}{4}$ lb.	$-4\frac{1}{4}$ lbs.	$+9\frac{3}{4}$ lbs.
Average duration of treatment ...	10 weeks	9 weeks	12 $\frac{3}{4}$ weeks	10 $\frac{1}{2}$ weeks.

In regard to this table it is to be observed:

1. That of the cases enumerated under "worse" one patient remained under treatment only seven days.
2. That of those classified under "improved" one suffered from tuberculosis of the right wrist. When well enough he was removed to the surgical side, and the joint was excised. He was readmitted after the operation wound was healed, and his total residence amounted to twenty-eight weeks.
3. That those classified as "greatly improved" all left the hospital without adventitious sounds in either lung.
4. That 11 of the series were discharged at their own request because they felt quite well, and were impatient to return to work. Longer residence on the part of some of those would doubtless have resulted in a higher percentage of "improved" and "greatly improved" cases.

Unfortunately there has been no means of following up the cases to ascertain whether, or for how long, the improvement was maintained. The patients are seamen, and after leaving the *Dreadnought* they either go back to sea or return home, many of them to foreign countries; so that there is little chance, except occasionally, of ever knowing the after-history. In 14 of the cases both lungs were involved, in 15 the right only, in 5 the left. Of the 20 cases in which the disease was limited to one lung, it was restricted to the upper lobe in 13. Three cases were complicated by the presence of laryngitis, one each by tuberculous disease of the wrist, tuberculous disease of the knee, enlargement of the cervical glands, caries of a rib, and middle-ear disease. The average age of the 34 patients was 32 years and 3 months, thus coming within the limits of the quinquennium during which the Registrar-General's statistics prove phthisis to be most fatal to males.

During the twelve months to which these statistics refer there were 10 deaths in the other wards from phthisis, bringing up the total number of deaths in the whole hospital to 16. This high mortality-ratio is explained by the fact that in the large majority of cases which the hospitals of the Seamen's Society are called upon to treat the disease is already far advanced before the patients come under observation, and their general health is frequently undermined by the hardships of their lives and the irregularity of their habits.

Comparing the death-rate with that of the previous two years from October to October, the following results are brought out:

	Number of Cases.	Deaths.	Percentage of Mortality.
1898-1899 ...	95	22	23.15 per cent.
1899-1900 ...	106	39	36.8 per cent.
1900-1901 ...	85	16	18.8 per cent.

There is thus a significant diminution in the death-rate as compared with previous years, and since the open-air method could not be expected sensibly to affect the returns within the first three months of its inauguration, there are reasonable grounds for anticipating a still higher percentage of improvement in future years. What, however, is of even greater importance than the diminished mortality, and more convincing as an evidence of curative efficacy, is the large proportion of cases in which a marked amelioration had been established at the date of their discharge.

The temperature charts, on admission and discharge, are copied from the ward record of one of the "Greatly improved" patients.

Chart 1.—On admission.

Chart 2.—On discharge.

THE LIGHT TREATMENT IN VIENNA.—An institute for the application of the light treatment has been established in Vienna. At a recent meeting of the Medical Society of that city Professor Lang announced that, in conjunction with a number of medical practitioners and philanthropists, he had founded an institute on the model of that of Professor Finsen at Copenhagen. The institute would be to a certain extent under the control of the municipality. Among the founders is the Emperor, who has contributed 10,000 crowns. Professor Lang's communication was received with much satisfaction.

A COLONY FOR PHILADELPHIA CONSUMPTIVES.—The Pennsylvania State Legislature has appropriated a sum of £20,000 to the Free Hospital for Poor Consumptives of Philadelphia, for the furnishing of hospital buildings at White Haven, to be used exclusively for the treatment of patients in the incipient stages of tuberculosis. To Dr. J. F. Flick, according to *American Medicine*, is due the credit of initiating this work. At present an old barn serves as a sanatorium, in which 17 patients are being treated. Work on the hospital to accommodate 200 patients will be begun at an early date.