

OUR PRIZE COMPETITION.

DESCRIBE THE HYGIENE OF VENTILATION AS APPLIED TO THE SICK ROOM AND HOSPITAL WARD.

We have pleasure in awarding the prize this week to Miss Ména M. G. Bielby, Cranford, Middlesex.

PRIZE PAPER.

The ideal of ventilation should be to supply the sick room or hospital ward abundantly with the natural outdoor atmosphere. Abundance is necessary (a) because the constituents of the natural atmosphere are essential to life and health; (b) because the patients cannot go out to obtain them; (c) because in illness both the skin and lungs give off abnormally impure emanations, which poison the air. The aim, therefore, should be to remove those impurities from the indoor atmosphere as they arise, and to arrange a continuous supply of cool, fresh air *without chilling the patients*.

The natural atmosphere is a nearly uniform composition. It is a mixture of oxygen, nitrogen, carbonic acid, and watery vapour, with, commonly, traces of other gases, as ammonia, sulphuretted hydrogen, &c. Of every 100 volumes of pure atmospheric air, 79 volumes (on an average) consist of nitrogen, the remaining 21 of oxygen. 10,000 volumes of atmospheric air contain only about 4 of carbonic acid.

The changes effected by respiration, *in health*, in the atmospheric air are: (1) an increase of temperature; (2) a great increase in the quantity of carbonic acid; (3) a diminution in the quantity of oxygen; (4) a diminution of volume; (5) an increase in the amount of watery vapour; (6) the addition of a minute amount of organic putrescible matter and of free ammonia.

Very much more oxygen is absorbed during the night, thus constituting a *reserve fund* to meet the requirements of the day. Hence the importance of sleeping in pure air. If the same air be breathed again and again, the proportion of carbonic acid and organic matter will constantly increase till it becomes unfit to be breathed, but before that point is reached headache, languor, and other uneasy sensations occur, often inability to sleep. When, as frequently, the organism is deliberately adapted to an intolerable atmosphere, it is only done at the expense of a depression of all the vital functions. Thus it is evident that provision for a constant and plentiful supply of fresh air, and the removal of that which is vitiated, is of far greater importance than the actual cubic space per head of occupants.

Authoritative tables state that each indi-

vidual requires 3,000 cubic feet of fresh air per hour. Hence, in hospitals, 1,200 cubic feet to 1,500 cubic feet require to be changed twice to three times an hour. This implies that the air of a ward should be kept continually moving by means of open windows, fires, and ventilators just below the ceiling. The best type of window is that divided into horizontal sections opening inwards and fitted with side pieces to prevent draughts blowing on the patients. Where such draughts cannot be prevented care should be taken to protect the patients' heads by screens or extra coverings.

It is insufficiently realised that two of the most important factors in rapid recovery from illness are warmth and comfort. Many hospital patients suffer severe discomfort through a sense of chilliness. Special diet might cure this in many cases. Old people with a lifelong habit of covering the head are never really comfortable with it uncovered, especially those with scanty hair. Loosely crocheted or knitted helmets would secure comfort in this respect.

In providing continuous ventilation for a sick room with sash windows, in rough weather, a two-inch length of batten placed below the lower sash is effectual, as this allows a supply of air to enter between the sashes, which is directed to the ceiling. With casement windows the patient's bed should be placed out of the air current, or protected by a screen. The temperature should be kept at 60 deg. Gas fires should be built so that the fumes are drawn into the chimney, and a kettle or bowl of water placed on them to prevent the air becoming too dry. Hot bottles, and woollies, including gloves, will ensure comfort on the coldest day.

HONOURABLE MENTION.

The following competitors receive honourable mention:—Miss H. Ballard, Miss M. James, Miss P. Thomas, Miss N. Evans.

Miss Ballard writes:—

Ventilation is the replacing of the impure air in a confined space by pure air from the outside, and is the most important subject in the hygiene of ward and sick room. Neglect of pure air entry favours the development of disease, retards healing of body or wounds, and lowers the whole body vitality. This can be understood when one realises each person in a room is breathing in pure air and expiring about 5 per cent. carbonic acid and watery vapour containing other impurities.

QUESTION FOR NEXT WEEK.

How would you prepare a patient for a Rectal or Anal Operation? Say what you know of the nursing of Rectal Cases.

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