OUR PRIZE COMPETITION.

WHAT ARE THE CAUSES OF TETANUS AND WHAT IS THE NURSING TREATMENT?

We have pleasure in awarding the prize this week to Miss Gertrude E. Hinchliffe, Leicester Royal Infirmary.

PRIZE PAPER.

Tetanus (Gr., I stretch) is an infectious disease of wounds due to the bacillus tetani, which is most prevalent in the soil, especially when manured, and in putrefying fluids. The bacilli are rod-shaped organisms with terminal spores. They are strictly anaerobic, and cannot grow in the tissues unless pyogenic organisms are present to use up the oxygen. They manufacture their toxins in the wound, which are absorbed by the nerve cells, and travel to the brain and spinal cord (not by the blood), thus giving rise to spasms of most of the voluntary muscles, characterised by painful contractions and convulsive exacerbations.

Predisposing Causes. — *A hot climate* favours the development of the tetanus bacillus, particularly heat followed by cold. *Occupation.*—Persons brought much in contact with the ground—gardeners, stablemen, &c. (horses are peculiarly susceptible). *Bad Hygiene.*—Overcrowding an ill-ventilated sick room or field hospital with sick and wounded people, and not taking due antiseptic precautions. *Scanty and Improper Food.*—Ulceration after the umbilical cord is severed at birth.

Exciting Causes.—A wound may be a septic or an insignificant one on any part of the body, but more commonly on one of the limbs, because they come more in contact with soil and dust. A cut with a dirty knife, a gash in the foot from the prong of a gardener's fork, the bite of an insect, or even the prick of a thorn have been known to set up tetanus. A blow or injury, compound fractures, punctured or lacerated wounds are most likely to allow the entrance of the bacilli causing traumatic tetanus.

Nursing Treatment.—The patient should be kept perfectly at rest in bed, in an absolutely quiet, darkened room, free from draughts and sudden noises, as the banging of a door. The patient's nerves and nervous system are generally hypersensitive, so every effort should be made to avoid sudden or violent stimulation to the senses; a very little may bring on a painful spasm. The value of good nursing is beyond a doubt. Cotton wool may be placed in the patient's ears to keep out the sounds. A nurse should wear light, noiseless shoes. Nobody should be allowed to enter the room but the physician and nurse, and the patient should be allowed to speak only when necessity dictates. A naked light should never be allowed to shine suddenly on the patient. As the result of violent contractions of the muscles, profuse perspiration occurs, which may necessitate the frequent changing of bed linen. Sudden or jerky movement must be carefully avoided. Methodical attention must be given to the back and bony prominences to prevent bedsores; after washing the parts, a good preventative is to rub first with methylated spirit, then with olive oil. Incontinence of fæces and urine may occur.

Diet is of more importance than drugs. Liquid, nutritious foods—milk, egg-flip, beef tea, &c., are very suitable. Stimulants may be ordered to be given with food. In mild cases the patient may be fed through the mouth, but where trismus (lockjaw) is very marked and there is not sufficient space to pass the soft rubber catheter into the larynx, nasal or rectal feeding may be necessary, but if the disturbance created by passing the nasal tube is too great, chloroform may be administered twice a day; also given if the patient is fed by a stomach tube, or to relieve painful contractions of muscles. The greatest care is necessary in feeding, since the spasm of the constrictor muscles greatly interferes with swallowing, and the patient might choke if the food is given too quickly. The mouth must be kept clean, and fresh glycerine and borax or lemon are useful for swabbing-out purposes before and after feeds.

Strictest asepsis must be maintained with regard to wounds. After the disease has appeared, free incisions should be made for drainage; the wound may be cauterised. In some cases it is necessary to amputate a limb. All peripheral irritation should be dressed with anodynes or soothing dressings. A wise precaution is to administer an immunising agent—anti-tetanic serum, injected in doses of 20 c.c. every 12 or 24 hours till symptoms cease. This only neutralises the toxin. Serum may be injected intercerebrally. Hypodermic injections of 10 to 15 min. of a 2 per cent. solution of carbolic acid two or three times a day may be of use. Chloroform and chloral, given in doses of 20 gr. every two or four hours, are only palliative remedies. The spasms may be diminished by the injection hypodermically or by lumbar puncture of a sterilised solution of magnesium sulphate, which reduces the excitability of the motor cells; 10-20 c.c. of 10 per cent. solution given hypodermically every four

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