

Burns and Scalds.

By MISS HELEN TODD,

Lecture to Probationers, National Sanatorium,
Bournemouth.

Burns and scalds are amongst the most common accidents of everyday life. As immediate treatment, or "first aid," is absolutely necessary, and the prolonged after-nursing of a severe case will call forth all your skill, patience and resource, it is advisable that you should have some knowledge of the nature of the injury, the constitutional effects that are likely to take place, and the special dangers to be guarded against during the different stages. Burns are caused by the action of dry heat, such as that produced by a flame or heated solid body (above 212° Fahr.), in contact with the tissues. Injuries from molten metals, gases, and certain chemicals, such as nitrate of silver and the caustic liquids, are also spoken of as "burns."

A scald is the result of the action on the tissues of liquids, such as water, oil, milk, &c., heated to and beyond 212° Fahr.

The damage caused by a scald on an exposed part of the body such as the hand is, generally speaking, of large superficial area, but no great depth, because the liquid tends to run over or off the surface; but if the part affected be covered with clothing, the injury most probably will be deeper, for the heated fluid will remain in contact with the skin until the clothes be removed, a process which takes some few minutes, no matter how quick the nurse may be.

A burn from a melted metal will be deep rather than extensive; indeed, it will often destroy the whole thickness of the skin and some of the subcutaneous tissues, the fluid congealing on the surface of the body, and burning deeply into it.

Dupuytren, a French surgeon (1778-1835) divided burns into six degrees, according to the depth of the injury, and his classification has since been universally adopted.

Mr. Walsham ("Theory and Practice of Surgery") gives them under the following names:—

1.—"SIMPLE ERYTHEMA," OR SCORCHING OF THE SKIN.

Here the flame has only been in contact with the skin for a few seconds, or the heat of the solid or liquid body which has caused the injury has been below 212° Fahr. As the local circulatory disturbance subsides so the redness disappears, the tissues suffering no permanent injury, although the pain may be very severe both at the time of the accident and for some hours afterwards. Desquamation may take place, but this will leave no sort of scar behind.

2.—"VESICATION," OR BLISTERING.

This degree occurs when the temperature of the body which causes it is 212° Fahr., or, in the case of a flame, the time of actual contact is rather longer

than that which produces injuries of the first degree. The burn does not extend beyond the cuticle, between certain layers of which serum exudes, causing bullæ or blisters. The serum is gradually absorbed (or removed by drainage), the superficial layer of the cuticle acting meanwhile as a covering which excludes the air until the new skin is formed. After a burn of the second degree we get no permanent scar.

3.—"DESTRUCTION OF THE CUTICLE AND PART OF THE TRUE SKIN."

This may be caused by the action of a flame or of liquids with a higher boiling-point than water, such as oil, salt water, &c.

This is the most painful of all the six classes of burns, because the nerve-endings in the skin are injured or exposed but not destroyed. After the injury, sloughs form and come away about the sixth day, leaving a permanent scar behind.

4.—"DESTRUCTION OF THE WHOLE SKIN," AND SOMETIMES OF THE TISSUES IMMEDIATELY BENEATH.

Burns of this degree are much less painful than the foregoing, as the nerve-endings are completely destroyed. Here we get "parchment-like sloughs," which may take a long time to separate. The new skin can only grow slowly from the edges of the burn and a scar of dense fibrous tissue forms, which will cause permanent contraction of the part affected and deformity, unless skilfully treated by the surgeon.

5.—"PENETRATION OF THE DEEP FASCIA AND IMPLICATION OF THE MUSCLES."

In burns of this magnitude joints are frequently involved, and form a source of great danger to the patient's life, for they are liable to open and become septic, in spite of all precaution, when the sloughs come away. Here also we get much scarring and deformity.

6.—"CHARRING OF THE WHOLE LIMB."

The constitutional effects after a severe burn usually follow a certain well-defined course.

In this connection it is interesting and instructive to observe the difference in the symptoms to be expected as described in text-books written before and after the appreciation of the principles of asepsis as applied to this class of injury. Thus in the 1892 edition of Mr. Walsham's "Surgery" we are told to be prepared for the following three stages in a patient's progress (?) after a burn:—

- (a) "Shock and congestion."
- (b) "Reaction and inflammation."
- (c) "*Suppuration and exhaustion*" (the italics are mine).

Contrast this with the stages given by Cheyne and Burghard in their "Manual of Surgical Treatment," 1901, when, if the wounds have been kept aseptic, we get as the third stage "separation of the

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