

almost certain is derived from the temperature of the body. But not only does the corpse not become suddenly cold at the moment of death, but in certain cases there is even an elevation of temperature post-mortem, due doubtless to the intensity of chemical action which then supervenes. This phenomenon usually takes place in zymotic diseases, and in cholera in particular, which is characterized by its subnormal temperature. One is often very much astonished at seeing the temperature suddenly rise to 107.5°F. , or 109.5°F. It is of greater interest to know how long this temperature takes to fall. The cooling goes on at unequal rates; at first there is a pretty sudden lowering, then a period of rest, and then a much slower loss. One of my students has been able to prove that the cooling takes place from the periphery towards the centre, but that correspondence with the surrounding temperature is reached only at the end of forty or fifty hours, although the experiments were made on the marble slabs of the amphitheatre in a medium favorable for cooling. It is to be remarked that this cooling varies greatly according to the medium in which the body is kept.

Formerly the question was often debated whether those who were drowned cooled more quickly than others. Well, as water absorbs heat ten times better than air, a body plunged in water will cool ten times quicker than a body exposed to the air.

Finally, the size of the body should also be taken into account, especially when we have to do with very much emaciated or very fat persons. Fat is a bad conductor of heat, and consequently retards cooling.

What degree on the thermometer can we mark as a certain sign of death? Here are too very instructive facts. While M. Bourneville was an intern at the Pitié, an individual was brought to him who had been found completely nude lying on the couch in his bedroom, and who had a temperature of 80.7°F. in the rectum. This individual died, and at the moment of death the thermometer rose from 82.4°F. to 96.8°F. The second case is one of M. Laborde's. He was attending a person dead-drunk who had a rectal temperature of something over 78.8°F. ; they succeeded in heating him up and bringing him back to life. A tem-

perature, then, of 79°F. is not incompatible with life. But I am convinced that if one observes a temperature of 68°F. one may certainly consider the patient dead. It is upon this view that a certain number of authors have constructed *thanatometers*, which are only varieties of the thermometer, and consequently useless instruments, since the latter is sufficient.

The other signs of death which have been insisted on, are the following: The physician who is observing the death should energetically rub the body so as to raise the epidermis; six, seven, or eight hours afterwards there will be at the same place a parchment-like spot (*plaque parchminée*) indicating death of the tissues. But besides this operation, which would compel the physician to uncover the body, not being agreeable to the friends, I recall the case of a young girl who, being suddenly taken very ill in a house where she should not have been, had been so energetically rubbed by the person who had taken charge of her, that she had not more than half a square inch of epidermis left on her body; eighteen hours after her death there was no parchment-like spot.

There is also the so-called test of burns. During life when one is burnt with a flame or some blistering instrument, there appears a flab which contains an albuminous fluid. In legal medicine you will find yourselves face to face with burns on the cadaver, and you will be asked whether they were made during life or after death. In the first case you will observe all round the burn a zone of congestion formed by a series of small veins in which there is blood. It is not always just so, however. In persons still alive but very ill, there comes a time when the epidermis reacts no longer, and the nurses tell you, "Sir, the blisters do not rise any more." On the other hand, on a leg which you have just amputated, you can produce bulbs filled with albumin. Again, some years ago a mechanic, whose shop had been blown up and who died in a super-heated temperature, was found covered with bulbs, but without a sign of the redness of which I have just spoken.

There is another sign which seems to be a better one, namely, the *explosive blister*. The finger of the patient is brought within half an inch of the flame of a taper; a blister slowly