

ally five to seven hours, all of the muscles of the body, involuntary as well as voluntary, become rigid, and can be stretched only by the application of considerable force. Sometimes, especially after long-continued and exhausting diseases, this rigidity appears as soon as a quarter of an hour after death. In the case of persons killed suddenly while in full health, it may not be developed until twenty or thirty hours after death, and it then continues for six or seven days. Its average duration is twenty-four to thirty-six hours; and as a rule it is more marked and lasts longer the later it appears. In warm weather cadaveric rigidity appears early and continues for a short time. When the contraction is overcome by force, after the rigidity has been completely established and has continued for some time, it does not reappear. The rigidity of the muscular system extends to the muscular coats of the arteries and lymphatics. During what may be called the first stage the muscles are still excitable; but when the rigidity is complete their excitability is lost and can not be restored. Cadaveric rigidity is always preceded by loss of excitability of the motor nerves.

The rigidity first appears in the muscles which move the lower jaw. Then it is noted in the muscles of the trunk and neck, extends to the arms, and finally to the legs, disappearing in the same order of succession. The stiffening of the muscles is due to a coagulation of their substance, analogous to the coagulation of the blood, and probably is attended with some shortening of the fibres; at all events, the fingers and thumbs generally are flexed. That the rigidity is not due to coagulation of the blood, is shown by the fact that it occurs in animals dead from hæmorrhage.

According to John Hunter the blood does not coagulate nor do the muscles become rigid in animals killed by lightning or hunted to death; but it is a question in these instances whether the rigidity does not begin very soon after death and continue for a brief period, so that it may escape observation. As a rule rigidity is less marked in very old and in very young persons than in the adult. It occurs in paralyzed muscles, provided they have not undergone extensive fatty degeneration.

Under ordinary conditions of heat and moisture, as the rigidity of the muscular system disappears the processes of putrefaction begin. The various tissues—with the exception of certain parts, such as the bones and teeth, which contain a large proportion of inorganic matter—gradually decompose, forming water, carbon dioxide, ammonia etc., which pass into the earth and the atmosphere. The products of decomposition of the organism are then in a condition in which they may be appropriated by the vegetable kingdom.

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