VIVISECTION AND MORTISECTION.

The pursuit of knowledge under difficulties has, from time immemorial, furnished a fruitful subject for the moralist, the philosopher, and the humorist. Perhaps danger gives zest to certain pursuits which would otherwise want for disciples. The cold and privation which constitute the risks to be incurred in Arctic exploration have, for certain people, the same irresistible power of attraction that lend a charm to the dangers of tropical Africa, and lead thither those brave men who take a real pleasure in advancing the boundaries of knowledge.

The difficulties encountered by explorers in barbarous countries are scarcely less than those to be overcome in civilized communities, owing to the prejudice of the populace and ignorance of the law givers. As man himself stands at the head of animate creation the last and crowning glory of the Creator's handiwork, the study of man becomes the noblest of studies. A selfish spirit prompts us to seek our own physical welfare, and, admitting of self-defense as the first law of our nature, no branch of science deserves greater attention nor should excite greater interests among all men then anatomy. A knowledge of the machine is absolutely essential to those who would repair it.

In early times when life was held in small regard it was not considered so very wrong to sacrifice a human being to appease some angry god or ward off a threatened plague or pestilence. To carve a lifeless corpse in order to prepare it for the roasting spit, or to obtain the entrails for the altar, was no uncommon deed, and yet up to the beginning of the fourteenth century we read of no case where a dead body was publicly dissected for the purpose of learning how it was made, its parts and their offices. The Mohammedan religion still forbids the dissection of a human body, and the people of to-day, nine-tenths of them at least, are Mohammedans at heart and would forbid dissection if they could.

The recent shooting case in a graveyard has called attention to this subject, and the question is asked afresh: Why must men risk their lives and incur the wrath of the community and the scorn of their fellows to obtain the only means whereby the surgeon and the physician shall learn his duty? Is it because the dead are more sacred than the living? The Jewish law required that he who shed the blood of another should suffer a like fate; but modern Christian people have decreed that those who touch the dead shall suffer swifter vengeance than those who destroy the living. Those who desecrate a grave in hope of extorting from the bereaved relatives an exorbitant ransom deserve severe penalties; but another law should apply to the man of science, who, actuated by his love of truth, and a desire to benefit mankid and to relieve suffering humanity, goes forth at the grim hour of midnight upon an errand most repulsive to his soul, and with trembling hand disturbs the sacred soil of "God's acre." Why does he brave cold and wet, even the danger of shot gun or pistol, and, at a loss of time and sleep, disturb the ashes of the dead? Certainly not for the fun of it; but because in many sections of the country law and custom make this his only resource. The same legislator that would make a dissection a *sine qua non* for the degree of doctor, would render dissection impossible by giving him no subjects except those obtained from graveyards, and then making body snatching a capital offense.

A false sentimentality makes us unwilling to see the remains of our relatives mutilated, yet many of our leading men confess themselves more than willing to submit to cremation. Here the question of premature burial naturally presents itself, and many persons say they should prefer to be burned alive than buried alive. It seems rather a sad choice! Well authenticated cases of burial alive are known; and with the general introduction of cremation cases of burning alive will probably take place, although then there will be no means of proving it, for the involuntary motion of the limbs in the furnace is no proof of life. While burning and burying alive are both possible, it is safe to say that no one ever has been, or ever will be, dissected alive, for the first stroke of the scalpel would detect the faintest spark of lingering life. In fact, cases are reported where this has happened, while in other cases body snatchers have proved rescuing angels who have saved human life. From a consideration of these facts the unprejudiced mind would acknowledge the dissecting room to be a safer refuge than the grave or the cremation furnace.

In the meantime this does not settle the question as to how material is to be obtained for dissecting-rooms without robbing graveyards. Cremation would put a stop to this, and thus seriously interfere with medical instruction. It is not enough that some States give their dead paupers and criminals to the colleges, for the number of medical colleges is greater than the number of the subjects thus obtainable. But there is one way, at least, out of the difficulty. Let every medical student solemnly swear, as he stands with uplifted scalpel before his first subject, that in return for the privilege of dissecting others he agrees to give up his own body after death for a like purpose. The medical fraternity owe it to their successors to form a mutual dissecting league, and thus render themselves independent of the general public, and at the same time win the respect of those who now blame them for encouraging grave robbing, an offense that none of them defend except when absolutely necessary.

Equally detrimental to the cause of science and the interests of humanity is the foolish attempt to prohibit vivisection. Theology, jurisprudence, and art have, in times passed, subjected human beings to torture worse than any vivisector ever inflicts upon numb animals. In the name of religion, of justice, and of art, vivisection has been practiced on man, but it is now denied to the student of anatomy, of physiology, and of pathology. Is "the true" of less consequence than "the good," "the right," and "the beautiful?" Trade and commerce, fashion and dress, epicureanism and gormandism, as well as art and industry, inflict upon our harmless neighbors of fur and feather woes greater in number, more severe in character, than the scientific investigator visits upon the animals subjected to his knife. The huntsman that leaves his dying prey in the bush, the taxidermist that flays a trembling bird for my lady's bonnet, the purveyor who stuffs the Strassburg goose until his liver is hypertrophied, and mutilates animals of all kinds to tickle my lord's palate — are they not guilty of acts as cruel and less defensible than the vivisector's? But we forbear to multiply examples. The case of the Dutch society for the prevention of cruelty to animals, which secured the passage of an act prohibiting the harnessing of dogs and compelled the women to drag their canal boats alone, is but an example of the way these self-styled humanitarians work.—*Sci. American.*

CREMATION.

BY DR. SAMUEL KNEELAND.

The four principal ways of disposing of the dead have been: First, mummification; second, burning; third, interment; fourth, aerial exposure; Of the first, practised chiefly by the ancient Egyptians, and of the fourth, by many savage nations, I need say nothing at this time.

In most nations, savage and civilized, from time immemorial, it has been the custom to inter the bodies of the dead in the ground, or to seal them up more or less tightly in tombs. Though these may answer all sanitary purposes, and fulfil all the sacred obligations of the living to the departed, in scattered populations, they are attended with danger, always increasing in populous communities.

This danger has practically been recognized by the fact that cemeteries have generally been placed without the limits of thickly inhabited districts. When persons, dead from infectious diseases, are buried in graves, they leave behind them to the public, as residuary legatees, a fearful amount of danger; and faithfully and impartially is the deadly legacy divided among all dwelling within a circle of one thousand to three thousand feet of such graves. Earth will, to a certain extent, deodorize, but cannot destroy or impede the escape of minute poisonous germs.

The danger from this source has never been fully appreciated by the public, entirely ignorant of the process of decomposition, and the products thereof. Of course the decay of the body committed to the grave depends as to rapidity entirely on the soil and temperature. In the Arctic regions decomposition is imperceptibly slow; in dry, torrid sands desiccation takes the place of putrefaction, and a kind of natural mummification takes place. In low, damp, or wet soils, in temperate zones, decay may be complete in one to one and a half years, giving off deleterious gases for that length of time, with perhaps the seeds of contagious disease. In dry, high, and airy soils the process is much slower and less dangerous.

What is decomposition of the human body? What are its products? What its dangers?

An English writer has defined the human body, chemically, as 45 pounds of carbon and nitrogen dissolved in 5½ pailfuls of water. Oxygen, though the principal of life, is also the great destroyer; the moment life ceases, our carbon by its agency is