usually is not an important means of cooling because the conductivity of clothing and the heat capacity of air are usually low

Conduction and convection become an important means of heat loss when the body is in contact with a good cooling agent, such as water. For this reason, when people are exposed to cold water, they become chilled much more rapidly and effectively than when exposed to air at the same temperature.

Air movement cools the body by conduction and convection, but, more importantly, moving air removes from about the body the film of saturated air which is formed very rapidly by evaporation of sweat and replaces it with a fresh layer which is capable of accepting more moisture Details of this type of thermal control are discussed in Chapter 28, "Local Exhaust Systems and General Comfort Ventilation"

Effects of high temperature are counteracted by the body's attempt to keep the internal temperature down by increasing the rate of heart beat The capillaries in the skin then dilate to bring more blood to the surface so that both the rate of cooling and, gradually, the body temperature are increased.

If the thermal environment is tolerable, these measures will rather soon lead to an equilibrium where the heart rate and the body temperature remain constant. If this equilibrium is not reached until the body temperature is about 102 deg F, corresponding to a sweating rate of about 2 L per hr, there is imminent danger of heatstroke

Heatstroke (also known as sunstroke) is not necessarily the result of exposure to the sun It is caused by exposure to an environment in which the body is unable to cool itself sufficiently As a result, the body temperature rises, and reaches a point where the heat-regulating mechanism breaks down completely The body temperature then rises rapidly

The symptoms are severe headache, visual disturbances, rapid temperature rise, and loss of consciousness The condition is recognizable by the flushed face and high temperature The victim should be removed from the heat immediately and his body cooled as rapidly as possible, most readily by being wrapped in cool wet sheets Since the condition may be quickly fatal, medical help should be obtained as soon as possible

Heat cramps may result from exposure to high temperature for a relatively long time, particularly if accompanied by heavy exertion, with excessive loss of salt and moisture from the body Even if the moisture is replaced by drinking plenty of water, the excessive loss of salt may provoke heat cramps or heat exhaustion

Heat cramps are characterized by the cramping of the muscles of either the skeletal system or the intestines In either case the condition may be relieved in a few hours under proper treatment, although soreness may persist for several days.

Heat Exhaustion is a shock-like state resulting, like heat cramps, from the loss of salt and moisture Its signs are a relatively low temperature, pallor, weak pulse, a feeling of restlessness or anxiety, and unconsciousness. Heat exhaustion is a more severe condition than heat cramps and is occasionally fatal A person with either condition, if conscious, should be given a half teaspoonful of salt in a half glassful of water every fifteen minutes for three or four doses, and put under medical care as soon as possible

Prevention of heat exhaustion and heat cramps has become almost routine since the introduction of the use of salt tablets in the hot occupations There is some resistance to the use of salt tablets on the part of a few individuals who say that they are nauseated by them. Usually, nausea results when the tablets are taken with an inadequate amount of water so that an excessive concentration of salt is built up in the stomach

To prevent nausea, a full 8-oz glass of water should be taken with each tablet It can also be prevented by the use of enteric-coated tablets which do not dissolve until they have passed the stomach or by the use of tablets impregnated with cellulose which dissolve very slowly in the stomach contents

Experience has shown that men do not stand a hot job very well at first, but develop tolerance rapidly and acquire full endurance in a week to a month

Atmospheric pressure

It has been recognized from the beginning of caisson work, about 1850, that men working under pressures greater than normal atmospheric are subject to various ills connected with the job. The main effect (de-