the matter of heat exchange.

If our skin were a sheet of silver foil of the same thickness, we would lose hear 2280 times as fast as we do, but a layer of immobile air, such as may be caught by fur, feathers, or close-knit cloth, will retard the loss of heat ten times as much as the skin.

To keep the air in free circulation over the skin, the clothing should touch the skin as little and as lightly as possible. Coarse meshed and porous fabrics are better than fine cloth.

The weave makes more difference than the color. It is true that black cloth ing absorbs about twice as much sunlight as white, but that does not tell the whole story, for it is heat that we want to keep out, and more than half of the sun's heat is not seen by the eye as light. We see about an octave of the solar spectrum, from the red waves of lowest frequency to the violet of highest frequency. But beyond the violet there are two octaves and below the red there are six octaves that we can not perceive with the eye. At high noon in the latitude of Washington, 51 per cent of the energy of solar radiation comes in the form of the dark heat rays of the infra-red, 40 per cent as visible light, and 9 per cent as ultra-violet rays, also invisible but the most powerful of all in their effect on the skin. It is the ultra-violet rays that are responsible for tanning and burning. Now the dark heat rays pass equally well through dark and light cloth, and the ultra-violet chemical rays pass better through light than dark.

Leonard Hill, the great English authority on climatology, commends the Egyptian robes as the most comfortable garments for a hot country for "as the native walks his garments sway and flap in ungainly fashion, but in doing so cause air currents, which have a cooling effect". The missionaries' wives, when called upon to devise a costume for the women of the Pacific Islands, did well from a sanitary point of view when they clothed them in Mother Hubbards, though they could hardly have done worse from an artistic point of view.

But it is not necessary for clothing to be unbecoming in order to be comfortable. Probably American women have never been more seasonably clad than they are this summer, but no one could call their costumes ungainly. The men, too, although they are more conservative and less original than women in matters of dress, have made some progress of late in the adaptation of their clothing to the summer season, but their tight collars and belts are contrary to the first principles of hot weather costume.

HOW ASTRONOMERS WILL OBSERVE MARS AT CLOSEST APPROACH

Mars will approach closer to earth on August 22 than it has in the past hundred years or will in the next hundred. This ruddy planet, now visible late in the evening as a very bright object low down in the southeastern sky, has been the subject of much speculation in past years, particularly as to whether it supports intelligent life capable of constructing so-called "canals" which have been described by prominent observers of Mars.

At this favorable opposition Mars will be only 34,630,000 miles away from

earth.

Leading observatories throughout the country have announed their plans for astronomical observations during the time of this visit of Mars close to the earth.

EXTENSIVE PROGRAM PLANNED AT LOWELL OBSERVATORY

Flagstaff, Ariz.- At the Lowell Observatory, which has followed closely and observed carefully every opposition of Mars since 1894, a program of observations has been under way for some weeks, according to Dr. E. C. Slipher, director. The methods of observations used at this observatory at past approaches of the plaent will be continued with added refinements, while newer methods of observation and instrumental equipment are to be employed in new fields of investigation.

"The size and density of Mars, its position and motion with regard to the sun and the length and character of its seasons as well as the length of its day have long been known with satisfactory accuracy," Dr. Slipher said. "Now the chief objects of observation are to determine the physical conditions existing on the planet. The aim is to learn more of the extent, density, and constitution of the atmosphere; the constitution of the polar caps; the determination of the planet's surface temperature; a further knowledge of seasonal changes and the nature and cause of the change in the dark markings or 'canals'.

"It is planned here to make visual observations with the 24-inch refractor telescope depicting the markings, polar caps and other features in drawings supplemented by notes and measures with the micrometer. These are intended to detect changes and trace out their cause. In particular the visual study will include observations and measures of well known markings to determine their position in Martian latitude and longitude. Measurements of salient points on the disk will also serve to check the adopted position of the axis about which Mars turns every 24 hours and 37 minutes.

"Large scale telescopic photographs of the planet will be taken at the same time to supplement the visual work. The photograph is more efficient in the exact rendering of tone and intensity of markings and their relative positions, and gives trustworthy confirmation to visual observations. The photographic record of the planet secured here, now extending back twenty years, is of great value in the study of this planet. Moreover, extended and systematic photographic record of the planet will provide comparable and incontestable material for future study of Martian changes and their interpretation.

"Photometry of the planet's surface will be carried out in order to measure the relative brightness of different parts of the surface and the character of the variations of the brightness of the markings.

"Large scale photographs will also be made with the 40-inch reflector, employ ing color sensitive plates exposed through different colored filters so as to measure the color values of the different markings. These should give valuable information on the nature of the markings and the changes taking place there. Observations of the spectrum of the planet will be carried out.

"In order to further the knowledge of the surface temperature on Mars, a