

# Overdressing and overgrowth of beard in Antarctica

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In spite of exceedingly low temperatures combined with almost continual wind in Antarctica cold is not in actual fact a cause for complaint. This is because the impact of ambient conditions is not experienced on the body surface, a fact which can be ascribed to suitable clothing (*Ant. Bull.* 19:4), the design and composition of which rest on principles of physics and the application of which allows every individual to create his own most comfortable micro-climate on his body surface. These principles can, however, be nullified by dressing too warmly.

Furthermore, physiologically the body adapts itself rapidly to cold in order to retain heat and at the same time to lessen perspiration. This lessening of perspiration is doubtless the most important factor in preventing frostbite. In the case of people who are exposed to continuous cold a dry skin develops as a result of arteriolar constriction and resultant decrease of rate of superficial blood flow. Indirectly this causes perspiration to diminish and less heat to be lost through evaporation and radiation from the skin. This is the natural way in which protective adaptation to cold is brought about in the human being.

Under cold conditions perspiration condenses readily in and between the layers of clothing. Because water is a good conductor of heat, the clothes lose their insulating value and consequently external cold easily penetrates to the skin. On the other hand the body heat, internally generated, will more readily be conducted to the surface of the clothing and thus be lost. Therefore, in spite of suitable clothing cold is often experienced due to damp clothes, gloves and socks, the underlying reason being that the person is overdressed for the occasion and the immediate occupation. The disadvantage of cold to the point of shivering is not only its unpleasantness, but its causing extremely high metabolic rates and thus a reduction in endurance and the easy development of extreme fatigue.

To prevent dampness on the body surface it is essential only to dress to such an extent that a mild sensation of cold is constantly experienced. When exercise has caused the body heat to rise, clothes must be systematically removed in order to reduce the surface temperature. More often mere slackening of the woollen scarf to emit superfluous heat from the body surface attains this end.

In fact there is no reason for a person, unless lost and utterly fatigued, to develop frostbite of the skin or extremities with the exception of the facial prominences or, under exceptional circumstances the hands, provided that the amount of clothing is so adapted to activity, ambient temperature and wind velocity that there can be no perspiration. Exposure of the hands is unavoidably necessary when mechanics and technicians have to repair vehicles or apparatus, or scientists have to handle delicate apparatus in the open. By allowing the flame of a blow lamp to play on the apparatus or by working in the hot air of the flame one is able to work longer than otherwise with bare fingers. Protection of the knuckles, the hand

and the wrist with fingerless gloves further extends the period to work comfortably with bare fingers.

In order to retain body heat a woollen scarf is worn round the neck. The purpose and use of a woollen scarf with a knot in front and the ends of which are tucked under the jersey, is to prevent entrapped warm air from escaping from the body surface through the collars at the neck. Vapour from the breath causes ice on the scarf which then defeats the purpose of the scarf, because ice is a good conductor of heat. But the lump of ice on the knot can then be turned to one side in order to thaw while the dry part in front carries out its insulating function.

Since the vapour of the breath freezes up on a luxuriant chin-beard the beard in turn freezes on to the scarf and anorak and even on to the jersey underneath. Such a pillar of ice forms a conduit for the detrimental conduction of heat from underneath the clothing. The habitually uncontrolled culture of a beard in Antarctica is therefore not commendable. In fact it is to be deplored. A short, neatly trimmed one is harmless because it cannot freeze on to the clothing. No beard at all, though, is preferable. Unfortunately the wildest growth attracts the newspaper photographer and is furthermore encouraged in South Africa by a firm which presents a cup for the biggest beard. Such publicity publicizes genetic traits, and not necessarily supremacy in scientific or technological achievement.

Long hair does not defeat the purpose of the clothing because it is out of reach of the vapour of the expired air. Neither beard nor long hair, however, helps to engender warmth, and rather encourages eczema when hygienic requirements, especially during field work, cannot fully be met.

From the above it appears that under normal physical conditions the causes of cold and frostbite are, ironically enough, those two factors in which the casual tourist-minded individual is apt to indulge in during his stay in Antarctica, *viz.* overdressing and overgrowth of beard.

Fig. 3. "Van" van der Heever, radio telegraphist SANAE VII, sports a short, neatly trimmed beard, which is harmless against freezing on to clothing.

