

to perhaps a hundred tons, but when a man, after having seen the light gleam through beneath and beside one of these, has to crawl over it like a fly on sugar, he can hardly help thinking of the proverbial 'last straw', and shows considerable alacrity in crawling off again on the far side. Time fails us to tell of the quadrifid 'split block', of the 'Mantelpiece', or 'Strid', and of many other points of interest; we must hurry on to the crisis of the climb. Here the trio which made the first ascent found it advisable, in order to circumvent an obstacle, to climb down a most formidable wall of vertical rock. By this retrograde manoeuvre a point was reached from which the ascent was successfully completed.

Looked at as a whole, the climb is a reasonably fine one and, though of substantial length, it is full of interest and variety. The difficulties are not unusually severe, but it would be no easy chance for a stranger to pick out the route, and up to Easter no ascent had been made, except by parties which contained one or more of the original trio. As, however, all these attempts, whether successful or not have been made by very large parties, scratched rocks and trampled grass now render the easiest course very conspicuous, and there ought to be no difficulty at all in hitting it off.

It must, however, be borne in mind that climbs of this character are not to be lightly or rashly undertaken. For a man in good climbing condition, whose feet, hands and head can be absolutely trusted, such climbs are perfectly safe and perfectly allowable, but a slip or failure of muscular power at a critical moment (of which there are many) would almost inevitably lead to disastrous consequences. Above all, it is necessary to have companions of well-tryed competence and no others. Anyone who, at starting on such an expedition, allows a chance acquaintance, of whose powers he knows little or nothing, to join his party, incurs a very grave responsibility. The amiable party of, say, three competent climbers, armed, if there be much snow, with axes, and, in any case with a good rope, will find no more enjoyable climb anywhere round Wastdale Head than that of Pillar Face.

## Dental emergencies in the mountains

Stephen Lisney

Dental and oral ailments are hazards not usually associated with mountain climbing, but during a meeting with Dr Peter Steele, medical officer to the 1971 International Everest expedition, I learnt that several members of the party suffered in this way. Although Dr Steele had no definite information, he gave the impression that this was often the case on major mountaineering expeditions. This prompted me to read some of the accounts of such ventures to see if dental emergencies had occurred, and if so, whether they had any bearing on the conduct of the expedition.

In writing about the attempt to climb Kamet in the Himalayas during 1931, F. S. Smythe recalled how he suffered from toothache for two weeks

before asking the accompanying doctor to remove the offending tooth. The impression given is that the operation was performed as a last resort, and it was added that three-quarters of a bottle of rum was needed to make the extraction tolerable (Smythe, 1933). In his account of the 1933 expedition to Everest, Rutledge (1937) described in some detail the precautions taken to avoid dental trouble. On previous undertakings of this sort he noted that there had been instances of 'latent abscesses at the apices of teeth' flaring-up, and to reduce the risk of this all but one member of the expedition had a thorough dental check and treatment before setting out. This policy appeared to have been justified as the only person who suffered toothache and on whom an extraction was necessary during the expedition, was the one who had not been able to have his teeth checked before the departure. Dental inspections have become the rule before all large-scale mountaineering projects, but unfortunately the climbers have not always been free of dental problems. For example, when with the French team climbing Jannu in 1961, Lionel Terray experienced a 'raging toothache', but fortunately the medical officer was able to dress the tooth using the simple dental kit he had with him (Franco and Terray, 1967). Also in 1961, Josephine Scarr, a member of the Women's Kulu Expedition, developed an abscess on one of her front teeth and she had to trek 30 miles to obtain treatment from a doctor (Scarr, 1966).

A problem for many climbers is the drying effect of the air which decreases in humidity with increasing altitude. At high altitudes the physiological compensation for the decreased partial pressure of oxygen is an increase in pulmonary ventilation. Added to this, the exertions of climbing further increase the ventilation rate and the result is that the individual finds himself breathing large volumes of cold, dry air through the mouth. This frequently gives rise to respiratory tract infections and uncomfortable oral conditions. Steele (1971) had to treat three cases of inflammation of the tongue which he considered had been caused by this, and Lambert (1971), the medical officer to the Annapurna South-Face-Expedition, reported an instance of extensive ulceration of the tongue thought to be due to dehydration of the tissue. Ulcers appearing on the lips have been attributed to the same cause (Wall, 1965; Scarr, 1966; Davidson, 1970; Ward, 1972), but some have suggested that sunburn may have been an additional factor. Some climbing groups have reported examples of the whole of the inside of the mouth being involved in this type of ulceration (Franco and Terray, 1967; Davidson, 1970). It is possible that some of the ulceration of the lips and the inside surfaces of the cheeks was due to trauma that went unnoticed at the time. Cold can cause anaesthesia, and therefore biting the lips or cheeks unknowingly is a possible cause of ulceration.

Oral hygiene is often neglected by climbers. There are difficulties associated with toothbrushing when on a climb; toothpastes tend to freeze, and because water has to be melted from snow, the tendency is to use it for hot drinks and not for washing. Many use chewing-gum to try to achieve some sort of tooth cleaning and others have made a point of saying how important they feel a toothbrush to be part of their kit (Scarr, 1966; Hornbein, 1971). Thomas Hornbein mentions as an aside that another member of the party never seemed to clean his teeth, but that this did not seem to hinder him in

reaching the summit of Everest.

The food eaten on expeditions adds to the difficulty of keeping the mouth healthy. In recent years attention has concentrated on producing a nutritionally satisfactory diet, but little consideration is given to its physical nature. When little fresh produce is eaten, and most meals are prepared from tinned or dehydrated products, the food adheres to the teeth to a greater extent and is cleared from the mouth at a slower rate. Another feature of the diet which militates against oral cleanliness is the large quantities of sweets, chocolate and fudge, etc. that are eaten. Like the prepackaged foods, they stick tenaciously to the teeth. It is well established (Löe et al., 1965), that inflammation of the gums appears 7 to 10 days after toothbrushing has stopped. This manifests itself as soreness and bleeding of the gums, a bad taste in the mouth, and the breath smells foul. Fortunately, reports of gum disease amongst mountaineers appear uncommon, but one example is worthy of mention. David Wall, a member of the expedition to climb Rondoy in the Andes during 1963, suffered for some days from bleeding gums and he wrote that this contributed to his insomnia and his general malaise (Wall, 1965).

In some of the accounts it seems that the dental problems were recorded because they were relevant to the progress and outcome of the venture. On any climb each person is part of an inter-dependent team, either as one of the climbing group or as one of the links in the supply network. If an individual has to break away from his particular job because of ill health, it can cause disruption of the expedition. What, under normal conditions, may seem a minor ailment can take on a greater significance when living in difficult and uncomfortable circumstances. This certainly seems to have been the case in some of the examples described. During the attempt on the South Face of Annapurna, Michael Thompson's morale and physical state were said to be very low, in no small part because of his severely ulcerated mouth, and he had to descend to a lower camp to rest (Bonington, 1971). Similarly, while waiting to make the final attempt on the summit of Rondoy, Graham Sadler was unwell and an irritable companion because of 'a huge festering sore on his upper lip' (Wall, 1965). As a last example, Yvette Vaucher was complaining of toothache at the time when she and her husband decided to leave the International Everest expedition, and her pain may have had some influence on her decision (Steele, 1972).

These illustrations suggest that the possibility of oral and dental conditions amongst mountaineers deserves to be taken seriously. Although the occasional dental emergency must be inevitable, most of the examples that have been discussed could have been avoided if sufficient attention had been paid to dental care before departure, and the need is stressed to keep the mouth clean during the expedition.

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## The Central Cordillera of Colombia

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Perhaps the only counterpart that could be found in our world for the Andes of Central Colombia is the high volcanoes of Africa. Judging from pictures, Kilimanjaro has a number of duplications in Colombian peaks like Ruiz and Tolima, and the Virunga, in the Puracé group. The wildlife habitat of Mount Elgon is imitated by some Colombian volcanoes around Túquerres. The striking plants of E Africa, like groundsels and lobelias, have also close equivalents in these parts of the Andes. And to round out the similarities, it is not unusual in the Colombian highlands to meet at times a hillman with undoubted Negroid features — the legacy of the slave trade, handed down from colonial times.

The Central Cordillera of Colombia is born in the heart of the country and heads along the continental divide of S America in a SSW direction, until reaching the international border with Ecuador. It is not a continuous range but rather it is composed of several isolated high massifs, separated by wide *páramos*, or rolling moorland, rising above deep tropical valleys that drain E and W. In spite of much recent aerophotogrammetry undertaken in the last few years by the Colombian air force, the range still lacks an accurate survey. Detail on existing maps is good for the inhabited country, but poor for the higher areas. The following orographical sketch includes the latest (1973) official heights from the state's Institute Geográfico 'Agustín Codazzi'.

**Ruiz-Tolima group.** According to Señor Octavio Castro, chief guard of the national park of 'Los Nevados', the range begins, N to S, with Volcán Bravo, which does not appear on maps. Señor Castro believes it to be about 4800m high and located almost due N of Ruiz.

Nevado del Ruiz is next, a rounded mountain with several summits and 2 or 3 craters of which the one SE of the main summit is the largest. The height of Ruiz has been repeatedly lowered, from over 7500m in the mid-19th Century, to the present official figure of 5320m. Señor Erwin Kraus, foremost Colombian mountaineer, believes it should be further reduced to 5237m, according to his own estimates (altimeter). El Ruiz — as it is affectionately called — is heavily glaciated and its former Indian name, now in disuse, was Cumanday, or 'White Mountain'. West of Ruiz is Volcán La Olleta ('The Pot'), officially listed as 4855m high. It is not glaciated but the ground within its large crater seems to retain snow all year round. South of El Ruiz appears a lower peak with the fine name of El Cisne ('The Swan'), too elegant a name for this simple, unglaciated mound of 5000m, indeed a mere spur of Ruiz. I