

NOTES ON EQUIPMENT AND TECHNIQUE

BIVOUAC EQUIPMENT

By C. J. S. BONINGTON

IN the last few years many parties have come to grief because they carried insufficient bivouac equipment. In the event of a sudden break in the weather, an easy route can become just as difficult and dangerous as a steep rock climb, necessitating a bivouac. If the party has no bivouac equipment, this will certainly mean a most uncomfortable night, and could well mean death by exposure.

The purpose of these notes is to discuss the most recent developments in bivouac equipment, and to determine the minimum amount that should be carried by all parties.

THE BIVOUAC SACK

This is the most important piece of equipment and should always be carried, however easy the route. In its most simple form it is a large bag, made of proofed nylon, that can be dropped over the heads of two climbers so that they can sit inside it using it as a poleless tent. It should be completely waterproof, since all too often a bivouac in bad weather is going to be a wet one. It weighs less than 2 lbs. and is very compact so that it is no trouble to carry.

This has many advantages over the *cagoule*, or plastic bag. Two people sitting close together can generate a surprising amount of warmth and can also maintain their morale. There is nothing more demoralising than sitting on a narrow ledge, isolated in a cocoon of plastic, waiting for the storm to end. Even though one's companion might be only a few feet away there is no feeling of contact, and conversation in a wind is nearly impossible. Also, in the shelter of a bivouac sack it is possible to light a stove for cooking and general warmth. A really good fug can be generated in no time. There is, of course, a certain amount of condensation, but this is not too serious and is amply compensated by the other advantages.

There are several designs on the market. It is possible to get the simple bag-type sack in most climbing shops. 'The Mountaineer', of Manchester, manufactures a more elaborate sack. The best sack on the market, however, is the Whillans sack, made by Frank Davis (The Climbers' Shop). This has many improvements on the basic design, being shaped like a tent that can be dropped over the head.

Moncher, of Grenoble, makes a bivouac tent that is extremely light and is ideal for high mountains, but it is not waterproof and is therefore unsuitable for the Alps. The Russians also use bivouac tents, made of balloon cloth, where the ice-axes are used as poles. These would be useful provided a good-sized ledge can be found. On many Alpine climbs this is not possible.

Most of the sacks available in England cost round about £6. This is certainly a worthwhile investment. Whatever the design, it is essential that there is adequate ventilation near the top of the sack.

COOKING

Butane Gaz

The small 'Réchaud Bleuét' stove is light, compact and easy to operate. The Gaz cylinders are also very compact, giving about half an hour of use. This is undoubtedly the best bivouac stove on the market.

Bordé Burner

This is a petrol stove especially designed for bivouacs. It is light and of very simple design. However, petrol is much too dangerous a fuel for bivouacs. The Bordé burner, in particular, is most unpredictable. I was nearly burnt to death by one on a particularly constricted ledge on the West face of the Petites Jorasses.

Meths. Stoves

These are very light and quite safe, giving a good heat. However, they are useless in a draught.

Solid Fuel Cookers

These give off insufficient heat. However, as they are extremely light it might be worth taking one on a climb, where a bivouac is not contemplated, in case of emergencies.

FOOD

Large quantities of solid food are heavy to carry and not really necessary. Provided there is plenty of soup and hot, sweet drinks, it is possible to maintain maximum climbing efficiency for a few days. Enough fuel should be taken to allow a brew every hour or so during the night. Solid food can be restricted to dried fruit, chocolate and some meat or cheese.

DOWN CLOTHING

Down clothing is not an absolute essential and need only be carried when a bivouac is anticipated. When going on a wet route, such as the

Eigerwand, it should be remembered that down is useless once wet. Plenty of layers of woollen garments, therefore, should also be taken.

Down jackets manufactured in England are slowly improving in quality, but tend to be rather bulky when compared to those manufactured in France. 'The Mountaineer' offers a down jacket with a proof nylon outer. This does not appear to be a good idea. There must be a certain amount of condensation inside it. If wet routes are anticipated a lightweight waterproof anorak can be carried. This protects the duvet from wear, keeps it dry and gives much better ventilation.

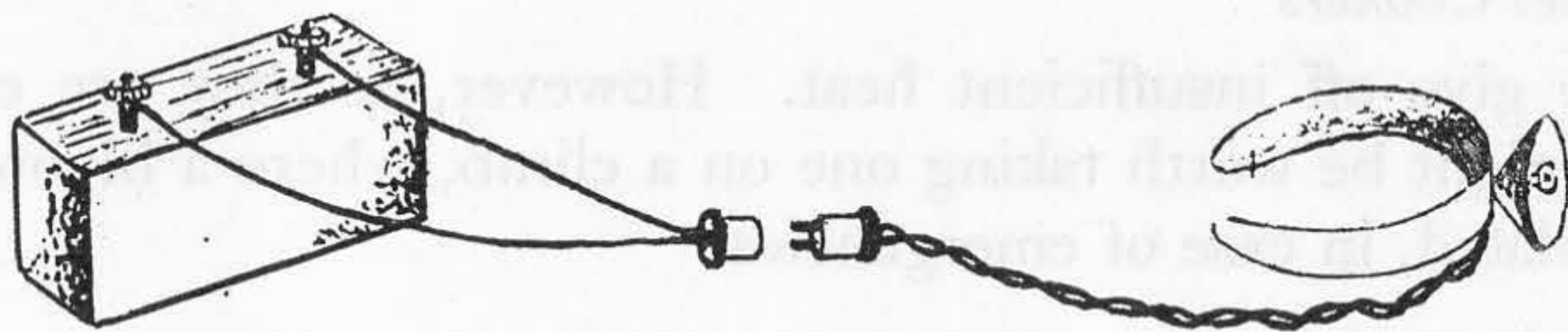
A *pied d'éléphant* (half-length sleeping bag) is a pleasant luxury, but of course is something extra to carry. If more than one bivouac is contemplated, the extra comfort probably compensates for the weight. If a *pied d'éléphant* is not taken, down socks are certainly well worthwhile. They weigh practically nothing, and could well save one's feet from frost-bite in an unexpected bivouac.

AIR CUSHIONS

These are extremely light, and greatly add to the comfort.

HEAD TORCH

This is a useful piece of equipment. The Ever-Ready torch is rather heavy, particularly the battery container. Also its life is rather short. The $4\frac{1}{2}$ volt Ever-Ready battery—type 126—is a useful battery with a good life. This can be encased in plastic, with two leads fitted permanently to the screw connectors. A male and female 2-prong socket can then be attached to the lead to act as a switch. This means there is no danger of the torch being switched on accidentally.



AMOUNT TO TAKE

Obviously, the amount and type of equipment will depend on the nature of the climb. A bivouac sack should be taken at all times, whatever the climb.

On long ice or mixed routes, where one might get wet from water or melting snow, it is worth taking spare socks and wearing plenty of woollen garments. It is better to have a light pair of breeches over long woollen underpants, being comparatively comfortable even when wet, and also being warm. On a rock climb spare clothes are not really necessary.

BIVOUAC EQUIPMENT AND PERSONAL CLOTHING FOR TWO BIVOUACS

Between the Pair

- | | |
|--------------------|-----------------|
| 1 Butane Gaz stove | 6 Gaz cylinders |
| 1 pint dixie | 1 bivouac sack |
| 1 lighter | |

Food

- | | |
|------------------------------|-------------------|
| $\frac{1}{4}$ lb. Nescafé | 4 tins sardines |
| $\frac{1}{4}$ lb. Ovomaltine | 1 tin corned beef |
| $\frac{1}{4}$ lb. sugar | 1 lb. dried fruit |
| 2 tubes condensed milk | 1 lb. chocolate |
| 4 pkts. soup | |

Personal

- | | |
|--|---------------|
| 1 duvet jacket | 1 air cushion |
| 1 <i>pied d'éléphant</i> (or down socks) | 1 head torch |
| 1 pair spare socks (on snow climb) | |

CONCLUSION

It is always difficult to strike a balance between maximum comfort and the weight of one's rucksack. By carrying too much bivouac equipment one can make a bivouac inevitable because of the slow progress of the party. A compromise must therefore be reached between speed of movement and the quantity of gear taken.