things like headsets, mobile phones, and computers. Condenser microphones always require a power source of some kind. This can be from batteries or via ‘phantom power’, where the microphone draws electricity from an external source, generally the recorder itself. In this system, 48 volts DC is supplied through the balanced audio connection itself. One problem is that some microphones which do not use phantom power, and which can actually be damaged by it, also use balanced audio connections (typically XLR). So in general phantom power should be switched off unless you are using a microphone which requires it. Another type of in-line power supply is found in some microphones for computers and portable recorders. These employ a stereo TRS mini-jack, even though the microphone itself is mono: the redundant channel is used to supply power to the microphone.

Battery-powered microphones may have some power-saving mechanisms, but unfortunately they do not turn themselves on or off, adding to the fieldworker's margin for catastrophe. As mentioned, this is especially the case with radio microphones, which require considerable power for both the transmitter and receiver packs.

(iii) Directivity

Many different degrees of directivity exist in microphones. To some extent, different patterns of sensitivity tend to be associated with particular designs and configurations (e.g. small table-top microphones are commonly electret and omnidirectional), but there is a large degree of cross-over. Choosing an unsuitable combination is therefore quite easy.

The omnidirectional pattern has been recommended in this chapter, but there are situations where it is not appropriate, particularly where the microphone cannot always be close to the intended speaker. In situations like this, where the speaker may be drowned out by other voices and noises, uni- and semi-directional microphones are more suitable. At the extreme is the ‘shotgun’ pattern. Microphones of this type are very directional and are used for example in wildlife recordings, where they can be used at a great
p. 31 distance to capture discrete events. ↳ The very narrowness of their scope makes them tricky to use—the relationship to the speaker must be constantly monitored. Should the speaker or the microphone move during recording, then you risk recording even more rain or surf. Having such a microphone mounted to a video camera in line with the lens (common on professional models) provides a relatively low-maintenance solution, assuming that someone is monitoring the recording through the camera most of the time. Shotgun microphones seem to perform better outdoors than inside, where they can cause phase problems and odd echoes.

Less extreme, semi-directional microphones are the so-called ‘cardioid’ types. Three distinctions are often made: cardioid, super-cardioid, and hyper-cardioid, in increasing degrees of directivity. These patterns favour sound from the front, without being too narrow. While placement is less critical than for shotgun models, such microphones do still place an onus on the sound engineer (i.e. you) and/or the speaker to maintain a good spatial arrangement. Again, such microphones can be mounted on a camera (and are likely to be the type of microphone supplied with a professional camera). These are the primary microphones used by documentary film-makers, presumably because of the useful degree of directivity (especially when mounted on the camera and therefore automatically aligned with the subject). Our experience with this technique was that, for reliable results, the camera had to be closer to the speaker than we generally felt comfortable with, and rather than using a cable to get the microphone closer (and then continually monitoring this arrangement) we preferred to use the radio microphones.