IN CAMERA

A major problem for the novice photographer is getting bogged down with the technical details of the equipment. The latest generation of cameras, however, has begun using the power of microprocessors to make picture-taking much simpler. We look at some of the processor-controlled cameras currently available.

When taking a picture, the photographer's first task is to decide on the correct *exposure*. This involves determining how much light from a particular scene will reach the film in the camera: too much and the picture will be bleached out, too little and it will be unviewably dark. To achieve the correct exposure, a suitable balance needs to be found between the setting for the *aperture* — the size of the gap in the lens, which determines how much light is let through — and the *shutter speed*, which determines the length of the exposure.

Therefore, the amount of light coming from a particular scene must first be measured and, taking into account the sensitivity of the film, the aperture and shutter speed set accordingly. Over the years, exposure meters were developed that allowed the photographer to take a reliable measurement of the brightness of a scene. More recently, exposure meters have been built into cameras, although the photographer still has to select a shutter speed and aperture setting to match the meter reading.

The growth of electronics in the 1970s has made it possible for the reading from the light meter to be translated directly into settings for the aperture or the shutter. This is done without any intervention from the photographer, so good quality results can be obtained simply by pointing a camera at a subject and shooting. This is a particularly useful facility for both the beginner, who may want to take photographs without understanding how cameras work, and the professional news photographer, who needs to snatch photographs under difficult conditions.

The Canon A1, priced at £260, allows six different modes for taking photographs. They are:
1) *Shutter priority:* the user picks a shutter speed and the camera sets the corresponding aperture.
2) *Aperture priority:* the user chooses an aperture and the camera sets the shutter speed.
3) *Program:* the camera sets both shutter speed and aperture using a program that produces an optimum combination of the two.
4) *Automatic flash:* when fitted with certain flashguns, the camera automatically sets the right shutter speed for flash (1/60 second) and sets the

IAN McKINNELL

Camera-Ready
Microprocessors have been controlling the interrelated functions of light metering and aperture-setting since the 1970s. Today's microprocessor-controlled cameras are capable of much more: taking care of shutter, exposure and flash functions to allow a novice user to produce high quality pictures, even in abnormal light conditions. Two such cameras are the Nikon FA and Pentax Super A, capable of running alternative control programs to cater for a range of different conditions