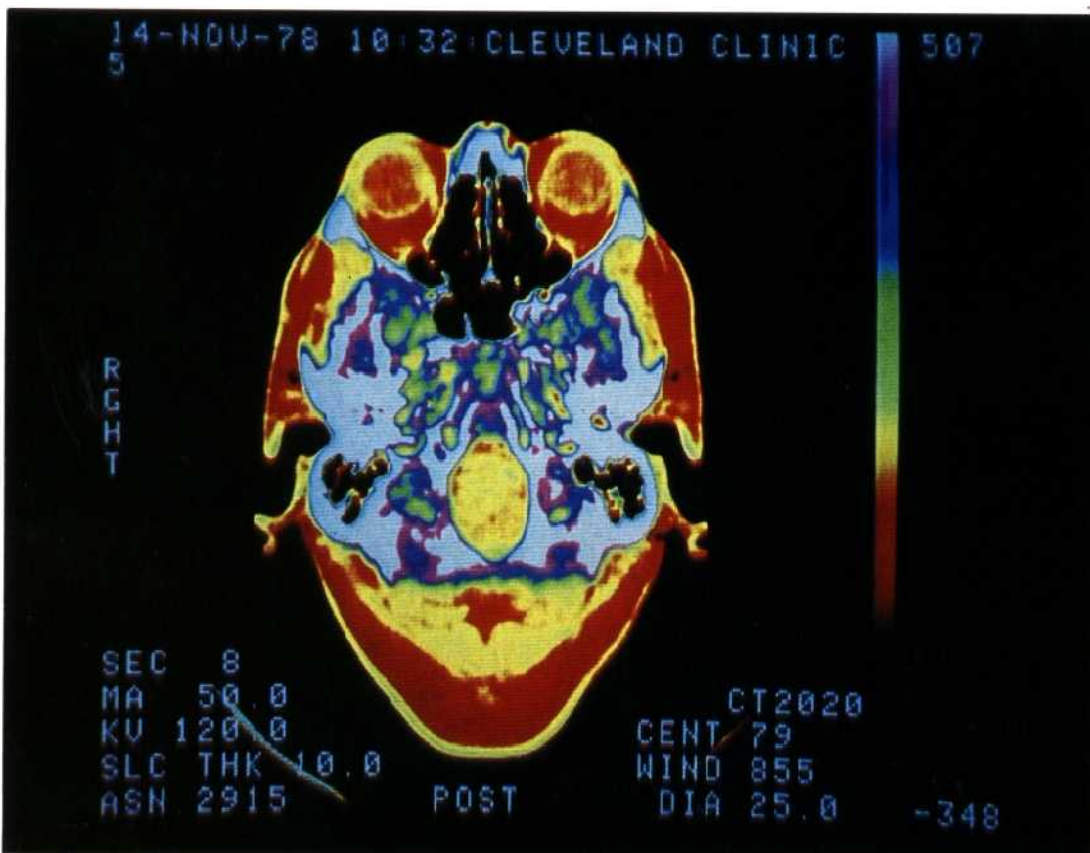




Micros In Medicine

An invaluable asset, the computer has reduced the amount of mundane work taking up the precious time of doctors and nurses



In common with so many other professions, where highly trained — and very expensive — personnel are required to expend a great deal of effort in relatively mundane tasks, medicine has benefited considerably from devices as adaptable and inexpensive as the microcomputer.

Shortly after the general introduction of micro-processor-based devices, intensive care units, in particular, changed their working practices considerably. Microcomputers soon became commonplace as monitors of pulse, respiration, and blood pressure, giving instant readings on multiple conditions, and thus freeing valuable nursing staff for less mundane duties.

More recent developments include an increasing reliance on micros in general practice and hospital administration for maintaining patient records, notifying patients of appointments and controlling pharmaceutical stocks.

We talked about one important application of computers in the field of medicine on pages 72 and 73, but it is worth looking now in more detail at how Expert Systems are used in general practice.

Mickie, a simple but successful system for

providing general practitioners with an over-view of a patient's current physical condition, is really an 'inexpert' Expert System, in that it does not seek to provide an exhaustive diagnosis, but only provides very general information.

The questions that the system asks of the patient are always in a form that can be answered by 'yes', 'no', 'don't know' or 'don't understand'. If the response is 'don't understand', then the system makes some effort to help the patient towards an answer.

Rather than presenting the patient with a full typewriter keyboard, the response is by means of a box with just four keys, labelled appropriately. When run, the system is rather slow, but that is an artificial limit, geared to average reading speed. The next step in the development of an expert system for general practice would probably be to link this newly acquired data with historical information. If it appeared that the patient has complained of these same symptoms on a previous visit, then the doctor might need to ask only one question to make his diagnosis — 'Are you feeling like you did in...?' Other advantages that computerised medical records

Slice Of Life

Conventional X-rays produce a flat, two-dimensional picture in which all the organs are superimposed. These pictures require expert interpretation. By scanning the body with a beam of X-rays, collecting the data on an array of sensors, and then using a computer to process the 'signals' into images on a screen, we can build up a far more accurate picture of a 'slice' through the body.

While the computer is capable of producing coloured images, as illustrated here, most radiologists still rely on monochrome pictures, which they consider to give a clearer representation of the relative densities of body tissue.



An Unsleeping Eye

As well as giving the nursing staff an indication of the patient's current condition, the monitoring system can also store information for later analysis. Here, a doctor is shown extracting very precise information about the patient's condition during the night. This helps him towards a better diagnosis.