the laboratory complex, a satellite of the main hospital computer, and all information which it contained about patients would be transferred to master files in the main computer centre. The laboratory would use its own computer as a multiple access system for on-line input and output.

To many of those working in the laboratory today, trying to cope with ever-increasing work loads with inadequate staff and inadequate accommodation, this concept may seem unrealistic. I would suggest that although it may be unrealistic for most of us at the present time it is the inevitable future. Technology has given us the ability to generate large amounts of information from individual samples obtained from patients. We must acquire methods of handling this information; more important we must devise methods for grading this information as it affects the health of the patient, and the clinician must be informed clearly in those cases where a particular piece of information is considered vital. We can no longer rely on the situation where, by manually scanning a mass of data returned from the laboratory, the clinician is expected to pick out, in the relatively short time at his disposal, the important features. It behoves us to use all the technological advances available to us to capture information, verify it, analyse it, comment on it and present it to the clinician in an easily assimilable form. This is why we should want a computer and this is what we should want to do with it.

SUMMARY

The pattern of a haematological service in a general hospital is defined and the requirements for a data processing system are stated. A proposed off-line data processing scheme using a commercial bureau is described, and the advantages are discussed in relation to the additional cost. Finally an on-line system is outlined in which not only are results collected directly from the analysing equipment but technical staff have access to information and can enter results directly through visual display units.

Discussion : A data processing system for haematology

D. ROBERTSON SMITH

Dr Chalmers has given us a clear account of a system of data processing as applied to haematology. I am speaking theoretically also, but in Reading we are considering an on-line computer to serve both haematology and biochemistry, initially linked to a combined screening laboratory using an SMA-12 and SMA-4. Both Dr Flynn and Dr Chalmers have given sound reasons for using an on-line system, particularly for the detection of errors and quality control.

In haematology there are two particular problems. One is access to the record store, which for most investigations can be on a once or twice daily basis but for some, particularly grouping and transfusion work, must be instantaneous. The other problem relates to the nature of haematology reports which are a combination of numerical and verbal.

In an open haematology laboratory a large proportion of the requests come from general practitioners. At the Royal Berkshire Hospital they form some 40% of the requests and the number is increasing. This presents us with one of our biggest problems in relation to patient identification, especially when trying to relate a hospital patient with earlier requests from the general practitioner before the patient had a hospital number. Until there is a universally acceptable unique identification number this problem seems almost insoluble, and I would like to know how others are dealing with this problem.

By far the commonest request is for a single haemoglobin estimation and I wonder whether it is really worth while *routinely* searching for previous results when so many will yield nothing. We all know the ideal would be for the person initiating the request to indicate whether there had been any previous investigations and only these could then be retrieved, but for various reasons one rarely receives this information.

I agree that most of the work passing through a routine haematology laboratory can be reported in a simple coded form. Taking routine blood counts, prothrombin estimations, simple coagulation tests, blood grouping, and cross matching, there is less than 1% which will require any long written report and these, together with bone marrow reports could, if necessary, be kept in a small conventional file with simply a reference to them on the computer store. This would, I think, give a simple comprehensive storage.

Emergency work done outside normal laboratory hours may present difficulties unless the record retrieval system can be operated by the technician on duty.

When measured against the enormous volume of requests now pouring through large haematology laboratories, the benefits to laboratory staff and the benefits to the clinical staff, the costs mentioned by Dr Chalmers are indeed trivial. I think the benefit to the clinician in producing easily read reports has not been sufficiently stressed in the past and must be a good selling point.