are AMPEX and TRANS-A-FILE. The main disadvantages are few suppliers, limited choice of hardware, and high capital expense. A basic system with four terminals, two tape drives, random access cross-referencing, one video input and associated equipment would cost in the neighbourhood of $750,000.

24.    Machine-readable systems provide more flexibility from the point of accessibility of information, storage of the information and dissemination. Typical hardware costs would be in the order of $1,500,000. However, a major problem exsits in the capture of the information itself.

25.    One way of capturing all information in the required form is to retype onto computer-readable medium. This would require a vast typing or keypunching operation and result in an excessive annual operating expenditure.

26.    Optical character recognition described in Annex 7 is another possible way of capturing information in computer-readable form. The state of the art requires very strict quality control and extremely expensive equipment.

27.    A more realistic approach is to capture documents in machine-readable form at source, either through the use of automatic typewriters, or directly into computer storage if possible. This is presently limited to telegraphic communications, although with appropriate introduction of word processing equipment, it could be extended to all internally-generated material. Externally generated material would continue to be a problem. At the moment electronic capture by retyping all such material would be the only alternative.

28.    The limitations in the state of the art, and high cost of capturing all relevant material in machine-readable form negates the possibility of electronic access from a central point for all material.

29.    A non-electronic form of providing full textual material is microform. An analysis of available microform indicates that for the type of system required in External Affairs, microfiche and roll film cartridges would be most appropriate. Without additional support, use of these forms will not satisfy departmental requirements. A means of access to the information must be provided and the time delays introduced through the filming process must be overcome.

30.    The use of microfilm instead of fiche is not as attractive, since once the fiche is made, its handling, equipment for viewing and copying are much cheaper than for microfilm. Information is also more easily parcelled on a fiche than an a roll film cartridge.

31.    The capture of any information already in machine-readable form is compatible with microform through the use of COM (Computer Output Microform). One example of such an application would be telegraphic communications which could be sorted electronically and captured on microfiche via COM for cheaper and less bulky dissemination.

32.    Accessibility to this non-centralized paper and microfilm mixture can best be achieved by maintaining computer references, accessible throughout the Department via remote terminals.

33.    The latter approach of using a paper/film/computer mix enables optimal use of each form to its utmost state of the art, each reinforcing the other's limitations and providing what will probably prove to be the most economic system.