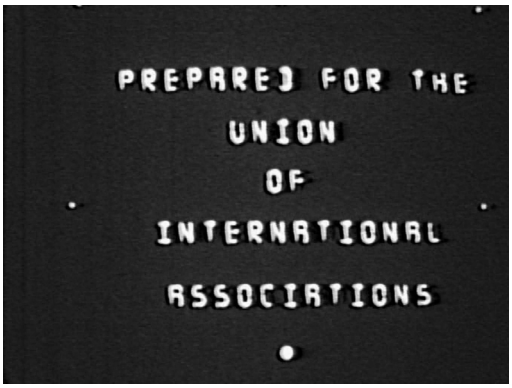
**Figure 10.1. Historical review**
## Visualization of Organization (1970)

*As early as 1970 the UIA was exploring ways of using computers to assist in visualizing organizational networks. A 16mm film was made of some of the work being done at that time; below are screenshots taken from that film; a commentary has been added. Also in 1970 and 1971 several papers were produced on the same theme; these are reproduced in Figures 10.2 to 10.7.*

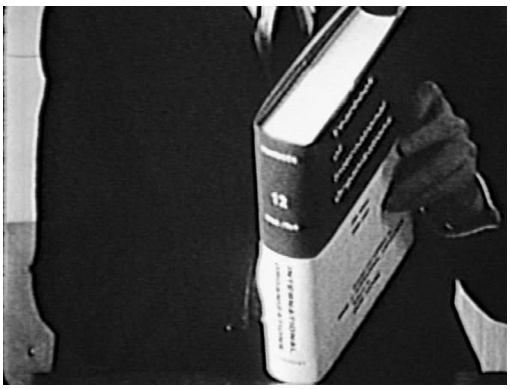
The possibility of visualizing sociological information was foreseen by a "fore-father of the internet", Paul Otlet, as founder of the Union of International Associations, in a seminal work (*Monde: Essai d'universalisme*, 1935): "La documentation de son côté a entrevu les possibilitiés techniques illimitées de répertoires analytiques et de tableaux synthétiques, enregistrant et visualisant les faits. La logique s'est faite mathématique avec la logistique, et l'algèbre de la logique; la classification a pris les énormes développements qui, en pratique, sont incorporés dans la classification documentaire universelle et les développements théoriques de la taxonomie. Mais tous ces progrès sont encore demeurés sans lien." His mention of the absence of links might be considered significant.


The Union of International Associations has been active since 1910 as a clearinghouse for information on international organizations, especially those of a nonprofit nature, whether nongovernmental or intergovernmental.




The results of its clearinghouse activity appear in the *Yearbook of International Organizations*. The first edition dates from the foundation of the UIA; the 4th edition followed the reconstitution of the UIA after World War II; at the time this film was produced the 12th edition (1968) of the Yearbook had been published and the 13th (1970) was in preparation.

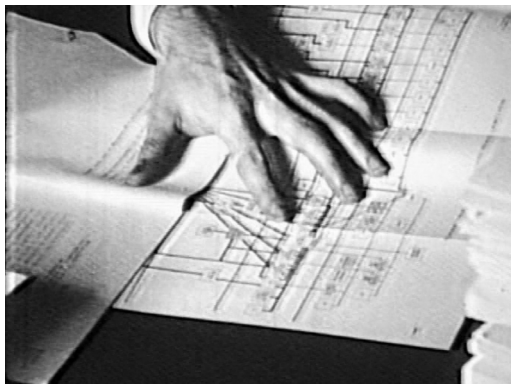
The 12th edition of the Yearbook listed 2,806 bodies: 2,577 nongovernmental organizations and 229 intergovernmental.



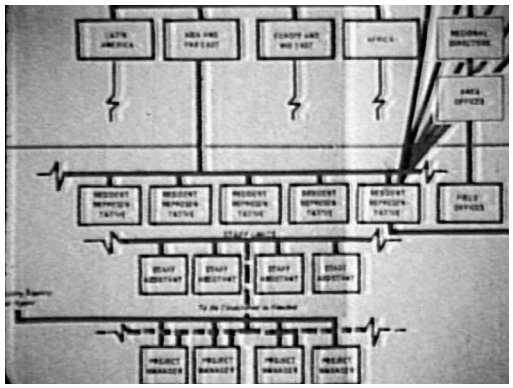
The problem of any text presentation in book form is that it is very difficult to explore links between organizations that are working together in some way. This image shows the challenge by folding pages to endeavour to get an understanding of such relationships.

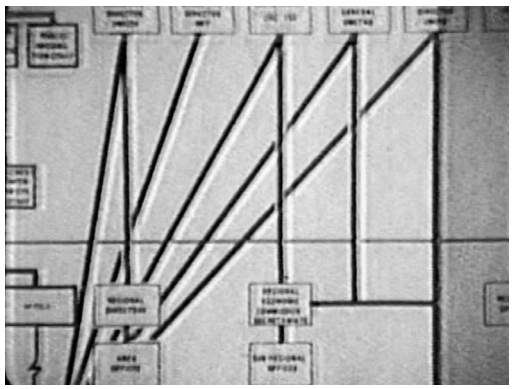
In the internet era, such profiles are now just a hyperlink click away from each other.

It was, of course, possible to produce complex diagrams of linked organizations. But, typically, at the time the focus was on hierarchical relationships. There remained the challenge of relating such hierarchies to the profiles of the bodies that formed part of those hierarchies.

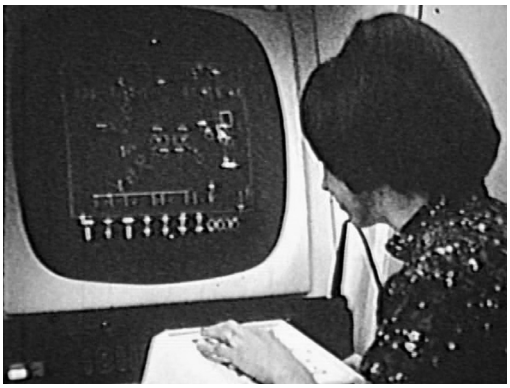


A related issue was the case of bodies that did not form part of neat hierarchies, but instead had links to several other bodies within the hierarchical structure.

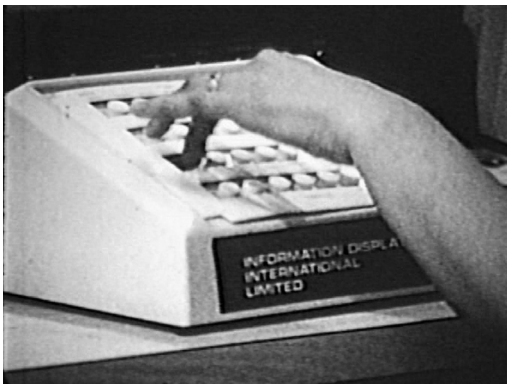




An alternative approach to managing information about complex networks of organizations could be envisaged by using a computer terminal. Such devices were already in use to handle information on other kinds of networks (railways, electrical grids, etc).



The user used a keypad to interrogate the computer and control the display.




A simple hierarchy of organizations – or units within an organization – might then be displayed.

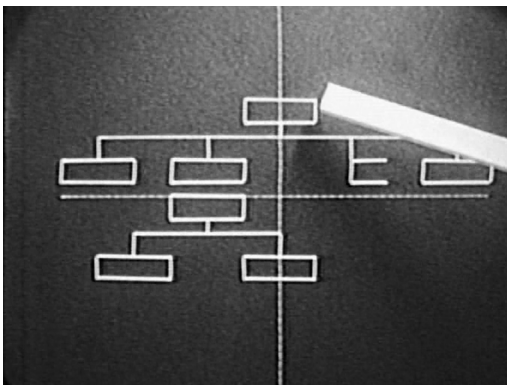
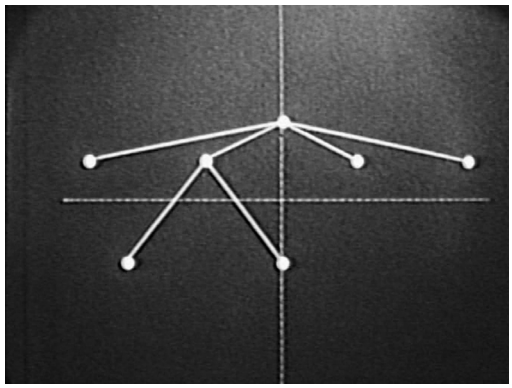


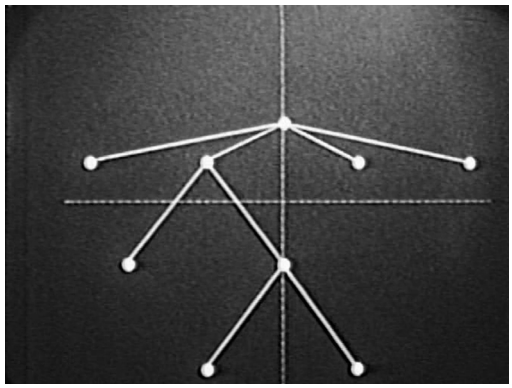


Figure 10.1.

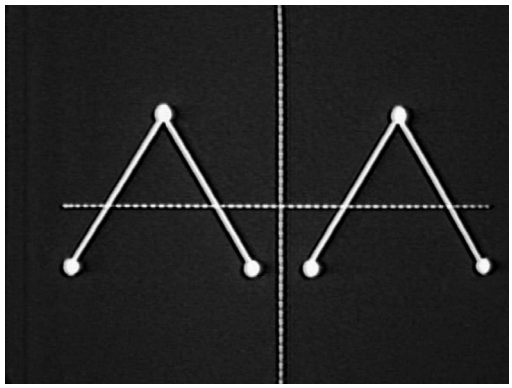
An alternative presentation could be used by converting boxes into nodes to emphasize the network nature of the information – and to be able to handle much larger networks.



Information on branches of a network could be accessed on request – exploring into more detailed or distant parts of the network.



Independent organizations or networks could be displayed – prior to exploring any links that might exist between them.

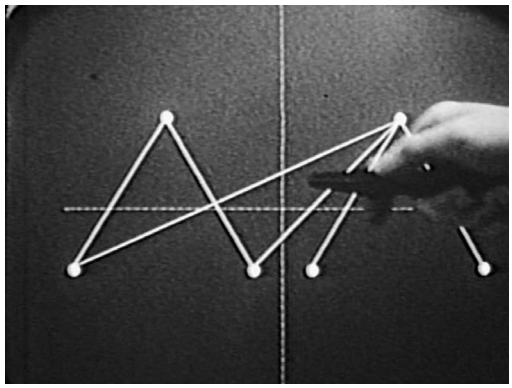


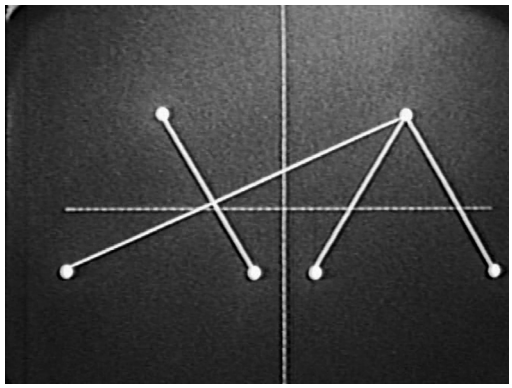
Another model of interacting with the information is by use of a light pen (later replaced by a mouse).



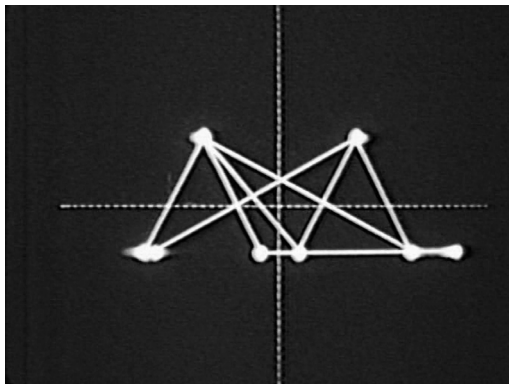
Figure 10.1.

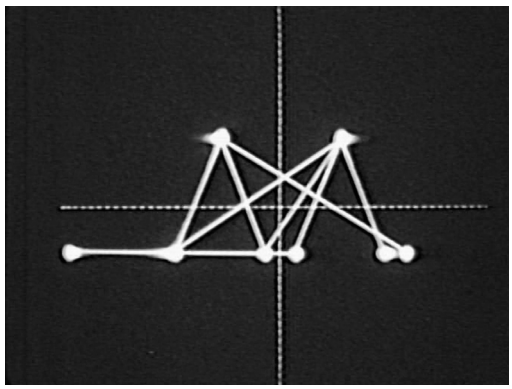
The light pen could be used to add information into the database. Here it is shown deleting a link from the database.



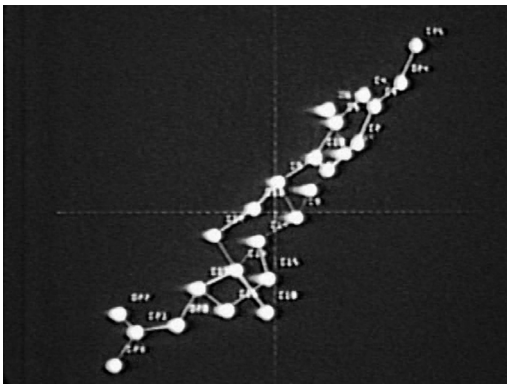


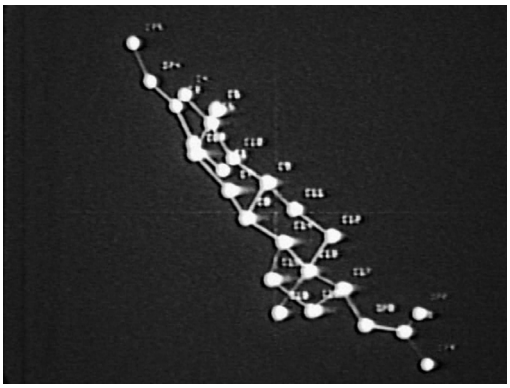
In addition to flat, two-dimensional images, more complex networks could be examined by displaying the information as three dimensional structures and then rotating them to view them from different angles.



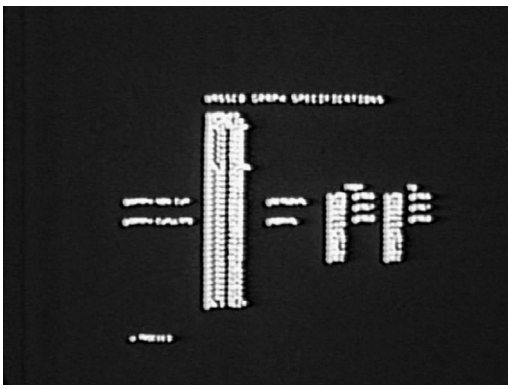


Much more complex structures could be displayed and rotated in this way. Labels could be added to identify individual nodes.

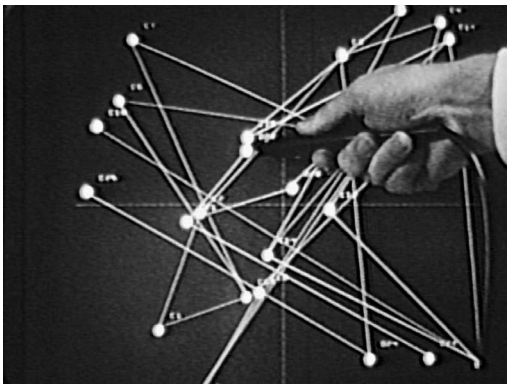


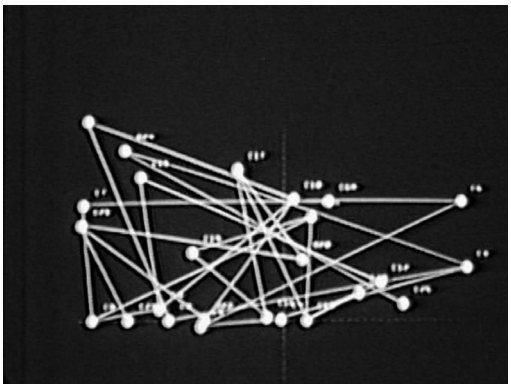


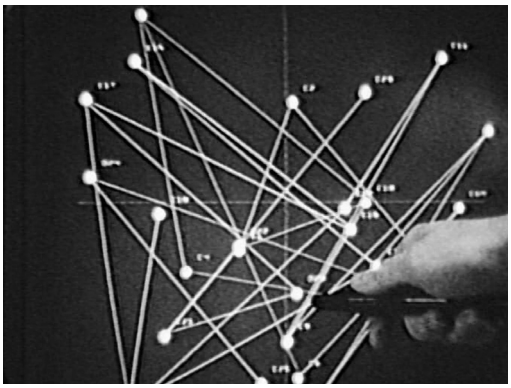
Associated information can be presented on individual organizational nodes in the network. Here some statistical data in tabular form is presented. This could also have been an analysis of the properties of the network – in terms of the techniques of the emerging discipline of social network analysis.

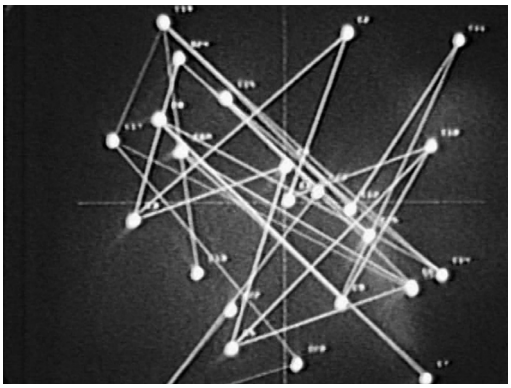


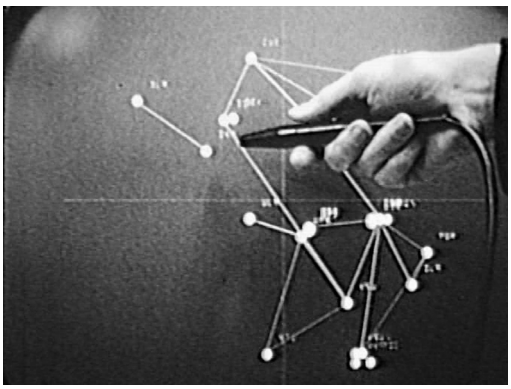
Using the light pen complex organizational structures could be manoeuvred to increase comprehension. It is evident that the networks can now be much more complex than simple hierarchies. They can be used to indicate working and communications relations between organizations – or perhaps flows of resources.











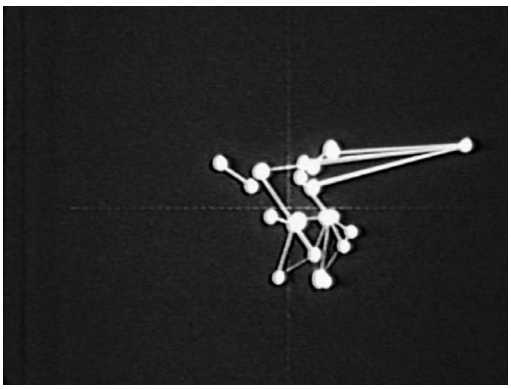




Figure 10.1.