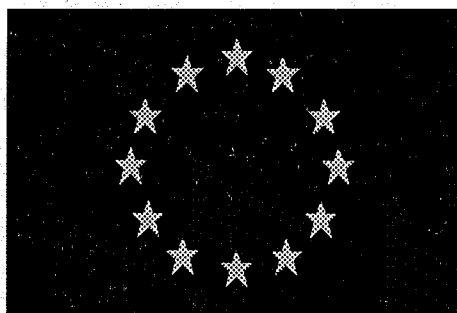


Cranfield
UNIVERSITY

Eurilia (European Initiative in Library and Information in Aerospace)

Current developments in the provision
of aerospace information: the role of
electronic sources including Internet



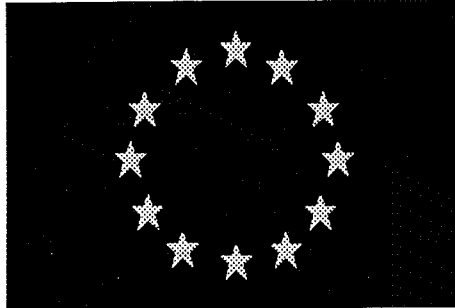
John Harrington
Cranfield Information and Library Service

COA report No.9403
November 1994

College of Aeronautics
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Cranfield, Bedford MK43 0AL, England



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INTRODUCTION

This report is part of the Eurilia (European Initiative in Library and Information in Aerospace) project, the aim of which is to enhance the Libraries' R&D and education process which underpins the aerospace sector by establishing a new service based on a standardised pan-European system for information access, retrieval, image browsing and document delivery. This will in turn extend the access and availability of major aerospace collections.

The partners in this project are:

University of Limerick
Delft University of Technology
Digital Equipment Corporation
Sup' Aero, ENSAE - Ecole Nationale Supérieure de
l'Aéronautique et de l'Espace
Instituto Nacional de Técnica Aeroespacial
Cranfield University

This report was originally presented at the international seminar on Eurilia held at Cranfield University in July 1994. The report was subsequently submitted to the EC as Eurilia (European Initiative in Library and Information in Aerospace), Pre-project Audit, Project LIB-EURILIA/3-2083 funded by the European Action Programme for Libraries, EURILIA/WP1/DR1/CU/JB/941014/V1.0, October 1994.

1 Background to Eurilia

This paper will review a number of recent developments in the provision of aerospace information. Over the last twenty years, electronic access to bibliographic information in aerospace has been led largely by dial-up online services. This paper looks briefly at current online developments, but also discusses changing modes of access, including CD-ROM and the Internet. In particular it will focus on Eurilia (European Initiative in Library and Information in Aerospace), a collaborative approach to enhancing the supply of information to the aerospace research community.

This paper will briefly describe the background to the project, and will attempt to review Eurilia's goals and objectives in the context of other developments in aerospace information provision.

Eurilia is a three year project, part-funded by the Commission for the European Community's Action Programme for Libraries, that aims to enhance the teaching and research activity that underpins the aerospace sector.

From its start date in February 1994, Eurilia will attempt to establish a pan-European system for information access, retrieval, image browsing and document delivery. It will extend access to, and the availability of, documents contained in a number of existing major aerospace collections.

In detail, the project objectives are:

- to develop a standard interface based on ISO SR (Z39.50), to provide common access to the online public access catalogues (OPAC) of aerospace library collections;
- to develop a PC based user application that will eventually integrate the SR OPAC access, network interconnection, image browsing and document delivery into a coherent new service and a model that could be transferable to other sectors;
- to establish effective networking links between all Eurilia partners, using an available standard open telecommunications network, to provide direct access to the OPACs at Cranfield and Delft, and a prototype image server/document delivery system at Delft;
- to investigate the impact of new Eurilia services on aerospace information users;
- to investigate the management and administration of the OPAC access, image browsing and document delivery aspects of the Eurilia service, and the potential for its subsequent commercial operation.

There are a number of factors which brought the Eurilia partners together in order to collaborate on an aerospace information project at this time.

- **CEC Libraries Programme.** The availability of funding by the European Community, intended to act as a catalysis for co-operative library development in Europe
- **Extension of existing interests.** The aims and objectives of the project reflect, and provide a logical extension to, existing interests amongst the Eurilia partners.

Delft, Sup'Aero, INTA and Cranfield all have major aerospace collections, supporting teaching and/or research. In addition Delft, Sup'Aero and Cranfield are already involved in a CEC funded aerospace project. This is the European Consortium in Advanced Training and Aerospace (ECATA), which is an advanced, post-experience training programme for key personnel in the European aerospace industry.

The University of Limerick has a developing requirement to provide its users with access to aerospace information. Without a large aerospace collection of its own, the University sees Eurilia as a means to facilitate access to relevant collections elsewhere, and as a potential outlet through which it can achieve wider dissemination of its own aerospace research and expertise.

Digital will use Eurilia as a technology demonstrator which will utilise a range of software capable of being developed into a full commercial product.

- **Collaboration in Aerospace.** The well established international and collaborative nature of the aerospace sector makes it the ideal focus for a subject based approach to resource sharing across national boundaries.
- **Changes in aerospace information provision.** For a long period NASA has held a pre-eminent position through its partnership with the American Institute of Aeronautics and Astronautics (AIAA), which supported the production of the Aerospace Database, the largest and longest established online source for bibliographic information in aerospace. There does now however seem to be a whole new series of opportunities and challenges occupying the aerospace information sector at present. It is possible to identify a number of trends which are discussed in more detail below.

2 Changes in aerospace information provision

2.1 Online

As far as dial-up online services are concerned, NASA's position as an aerospace producer was maintained through the creation of its bilateral and then, with the European Space Agency's Information Retrieval Service (ESA/IRS), its trilateral agreements with individual user organisations which defined and regulated access to the Aerospace database (known as the NASA database to ESA/IRS users in Europe).

This situation seems now certain to change, under the influence of a number of factors, including the following:

- **The development of alternative aerospace databases.** This process began some years ago with ESA's creation of the European Aerospace Database (EAD)⁽¹⁾ and in the past year, the German Aerospace Database, the Deutsche Luft-Und Raumfahrt Datenbank (DELURA)⁽²⁾, has also become available. Further aerospace databases are in various stages of planning and development in Japan and France, and there is much interest in widening access to information derived from Russian and other former Eastern Bloc sources.
- **The concept of National Aerospace Information Centres.** The creation of these new aerospace databases has focussed attention on how they can be expanded to establish effective bibliographic control over each nation's output of aerospace documents.

NASA and ESA currently seem to be favouring the concept of National Aerospace Information Centres, which would have responsibility for collecting aerospace documents within each country and would process a bibliographic record for each document in a NASA or ESA compatible format. The number of documents processed and/or full text copies of grey literature (reports, theses, patents, etc.) would regulate access to those databases. Both ESA and NASA seem to have accepted this principle of reciprocity as a way of regulating access to their databases, but it is unclear how these National Centres should operate and most importantly how they will be funded.

- **International Aerospace Database Proposal.** Over the last two years there has been much discussion^(3,4,5) about the creation of an International Aerospace Database. The aims of the database would be to maintain compatibility in retrieval, eliminate unnecessary duplication, and to share the burden and cost of acquisition, organisation, and dissemination through international co-operation and resource sharing.

In view of the recent, highly publicised dispute between NASA and the AIAA, and the very complex political negotiations still to be agreed, especially between the interested parties in the US and in Europe, it does seem somewhat doubtful that the IAD concept will be realised in the very near future.

3 Other modes of access

3.1 CD-ROM

Perhaps the most significant development in CD-ROM access to aerospace information in the last few months is the availability, for the first time, of the aerospace database to customers outside the United States. With coverage back to 1986, and containing over 500,000 records, this is the premier CD-ROM based aerospace information source available at this time. However, it should be noted that the dispute between NASA and the AIAA has meant that many of NASA's documents for 1994 have yet to be included on the database. At the time of writing the AIAA were hopeful that the situation could soon be resolved and that a series of additional updates would be used to get the missing data distributed to existing subscribers.

3.2 The Internet

The last couple of years have also seen a number of very interesting service developments on the Internet and this should now be considered a potentially very valuable means of accessing and retrieving information related to many aspects of aerospace.

The very dynamic, and yet almost chaotic, nature of the Internet, makes it difficult to present anything like a fully complete and up to date overview of these developments. However it is possible to give some examples here which will hopefully give a flavour of the sort of information sources that are now available.

As a starting point for looking for useful aerospace information sources, a look at some of the following general guides is recommended.

- **UK Bulletin Board for Libertas (BUBL).** The BUBL subject tree provides links to resources in Gopher space (figs 1 & 2).
- **World Wide Web (WWW) Virtual Library.** Distributed catalogue of sources arranged by subject through the World Wide Web search software. Each subject list is maintained by a separate site or organisation and includes aeronautical, aerospace and general aviation pages, maintained by Embry-Riddle Aeronautical University in the US (figs 3 & 4).
- **The Whole Internet Catalog.** This is a well established guide published by O'Reilly & Associates. It is accessible and updated over the Internet via the Global Network Navigator Service (figs 5 & 6).
- **Aerospace Engineering.** Guide to Internet Resources produced by Clearinghouse for Subject Oriented Internet Resources Guides, School of Information and Library Studies, University of Michigan (fig 7).

4 Other useful sources

NASA has been very active in the development of information services over the Internet. The starting point for an exploration of these is the NASA home page (fig 8).

In order to illustrate some of the services available from NASA have a look for example at:

- Hot Topics for current news items (fig 9);
- the NASA Scientific and Technical Information Program (NASA STI) which includes Selected Current Aerospace Notices (SCAN), current awareness (figs 10 and 11);
- the NASA Thesaurus (fig 12);

- access to the NASA RECON database 1990-92 (figs 13 & 14).

It is also possible to obtain full text copies of selected NASA reports via the NASA Technical Reports Server (NTRS) (figs 15 & 16). NASA also provides excellent Internet links to, and between, its various research centres, and to other external agencies and research organisations (figs 17 & 18).

ESA is also in the process of developing some very interesting sources on the Internet, including descriptions of its various programmes (fig 19), its own European Space Information System (fig 20) and full text electronic papers (fig 21).

The wealth of aerospace information available across the Internet is impressive in both its variety and amount. A miscellaneous set of examples includes aircraft performance data from the Aeronautics Archive (fig 22), an index of online Federal Aviation Regulations in full text (fig 23), as well as a whole host of university aerospace schools and departments such as the examples given here from Stanford University in the US (figs 24 & 25), Delft University of Technology (fig 26) and Cranfield University (figs 27 & 28).

5 Eurilia goals and objectives in context

In order to illustrate how the Eurilia project will fit into the context of the other developments in aerospace information provision, it is helpful to refer to three fundamental goals that the project shares with the International Aerospace Database concept described above. These goals are:

- to maintain compatibility with existing aerospace information services
- to avoid wasteful duplication
- to share resources

5.1 Maintain Compatibility

Compatibility in terms of information retrieval will be assisted by:

- using the NASA/ESA scope to define Eurilia subject coverage;
- indexing records using terms from NASA thesaurus;
- a number of options which are being explored for providing links to the thesaurus online, e.g. via Internet connection, as a separate menu option with a copy mounted on the Delft server, or fully integrated as part of a subset of the Cranfield/Delft OPACs.

5.2 Avoid Duplication

Eurilia is seen as a way of optimising utilisation and access to the collections of the Eurilia partners.

The full text image browsing capability will focus initially on Cranfield's thesis collection. Although this will largely consist of relevant aerospace PhD theses, access will also be provided to fifty prize winning MSc theses as part of the initial sample. It is hoped that Eurilia will be expanded to include other sorts of documents, with all of the partners eventually contributing to the expansion of the database.

5.3 Resource Sharing

Eurilia will also exploit the use of the Internet as the networking infrastructure, to provide access to the OPACs of Cranfield and Delft, and a prototype image server/document delivery system at Delft. The adoption of the Internet will provide a readily accessible and cost effective means of developing resource sharing policies for information access, and document delivery amongst the Eurilia partners.

Eurilia is therefore all about exploring collaboration at an international level between a number of organisations who share research and teaching interests in a common subject area. With its emphasis on providing a common interface and an integrated access, retrieval, document browsing and delivery facility, the project fully reflects current concerns in the aerospace information sector with issues of information collaboration, compatibility and the effective use of shared resources.

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Fig.1

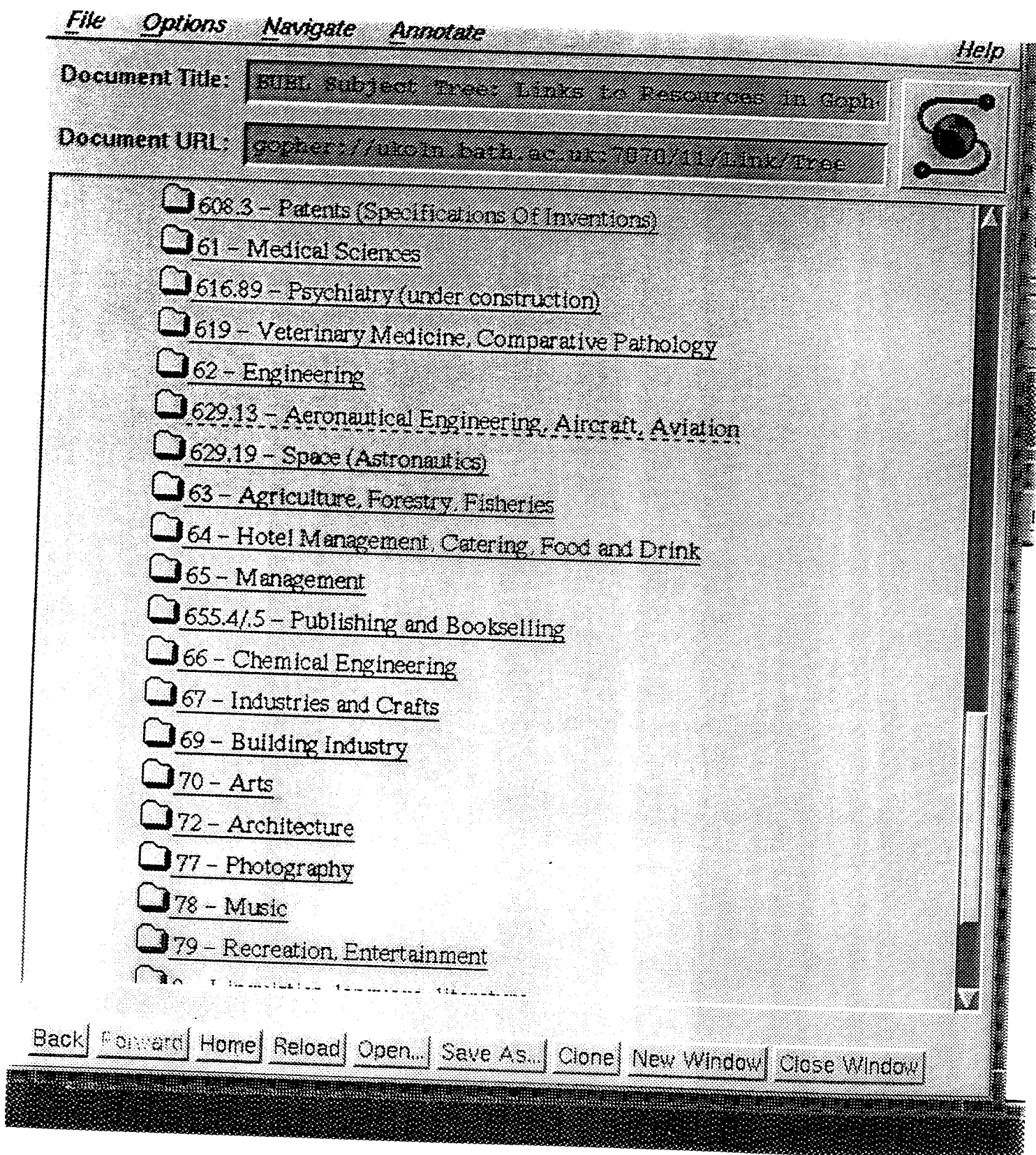


Fig.2

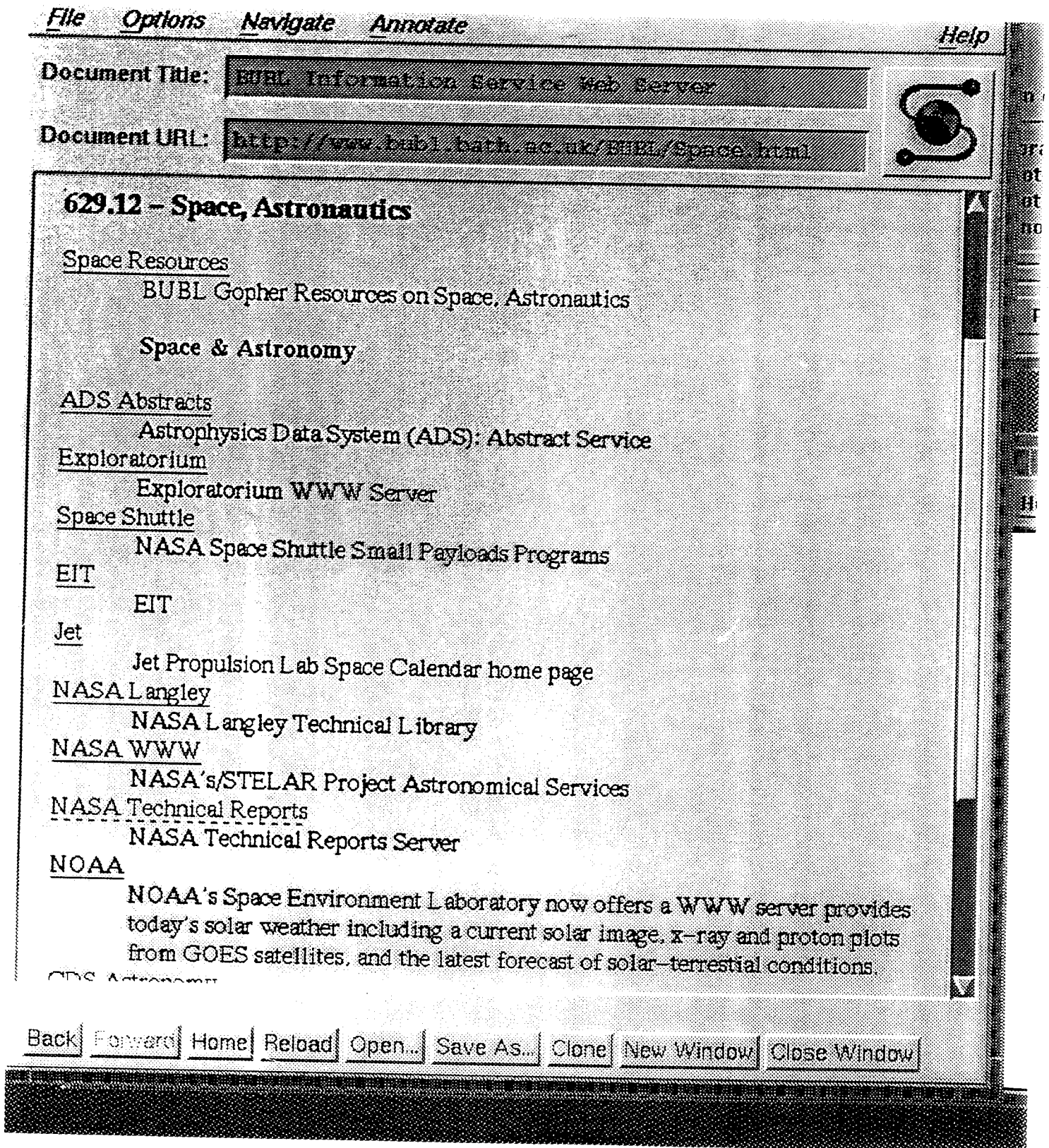


Fig.3

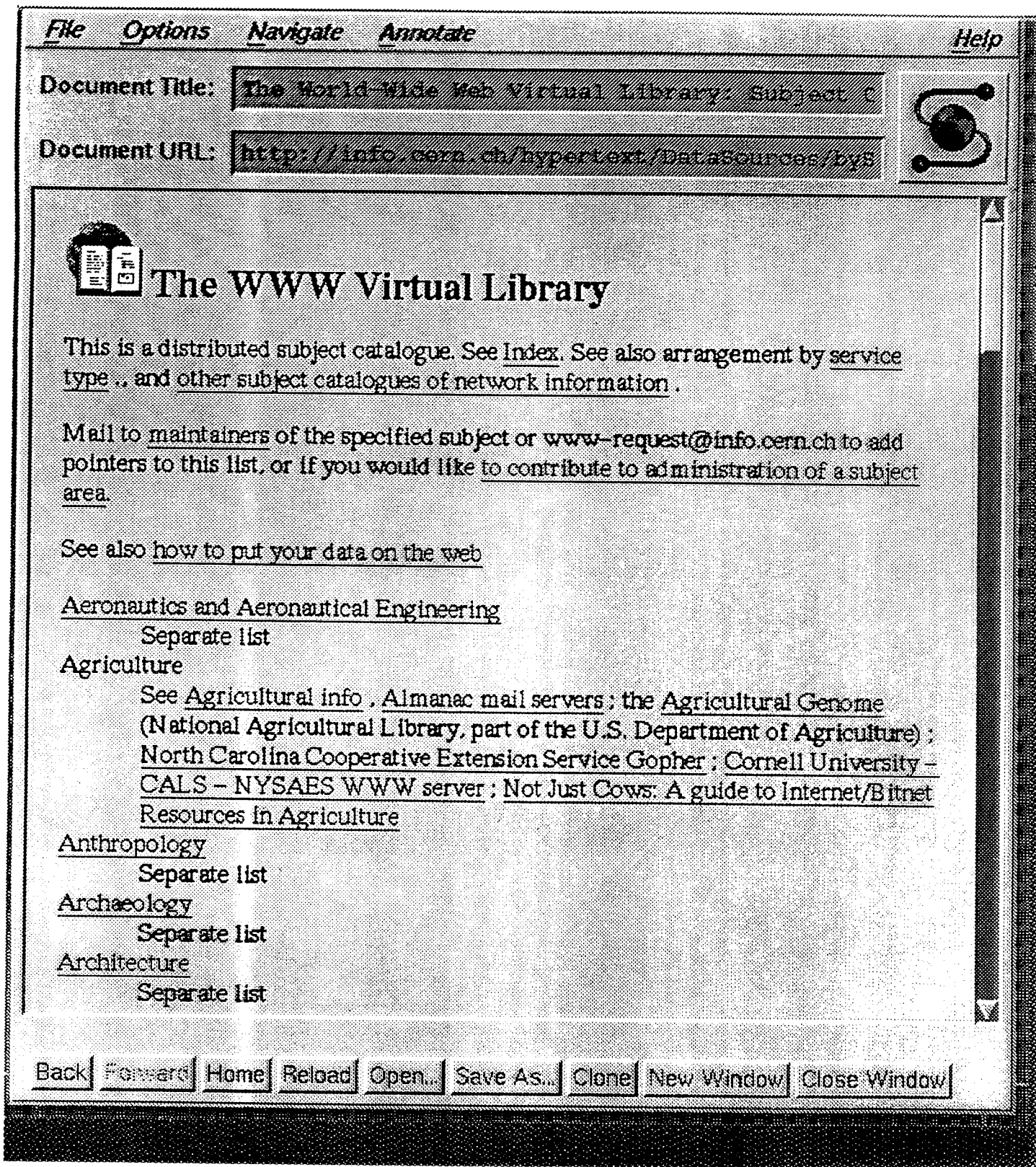


Fig.4

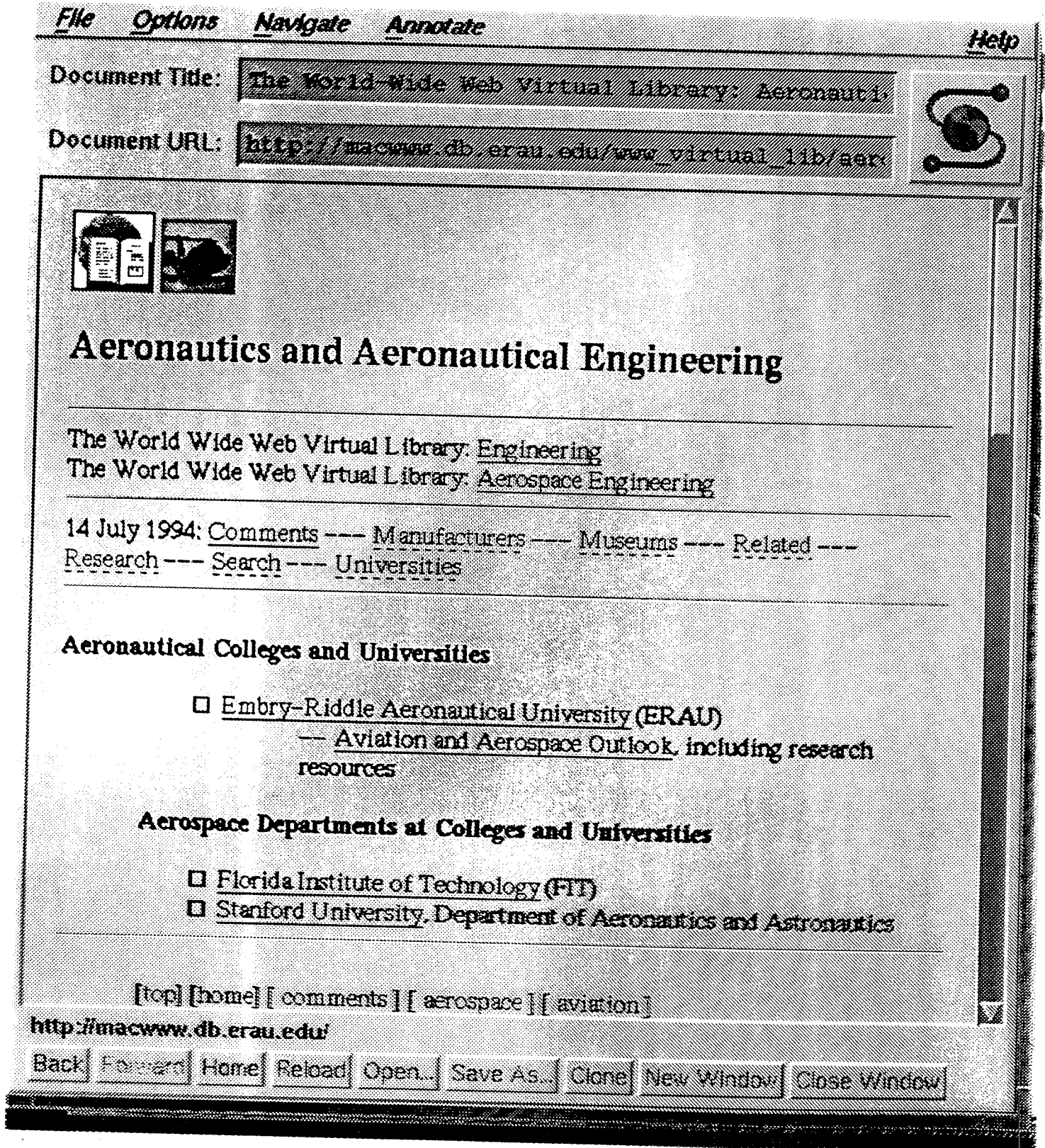


Fig.5

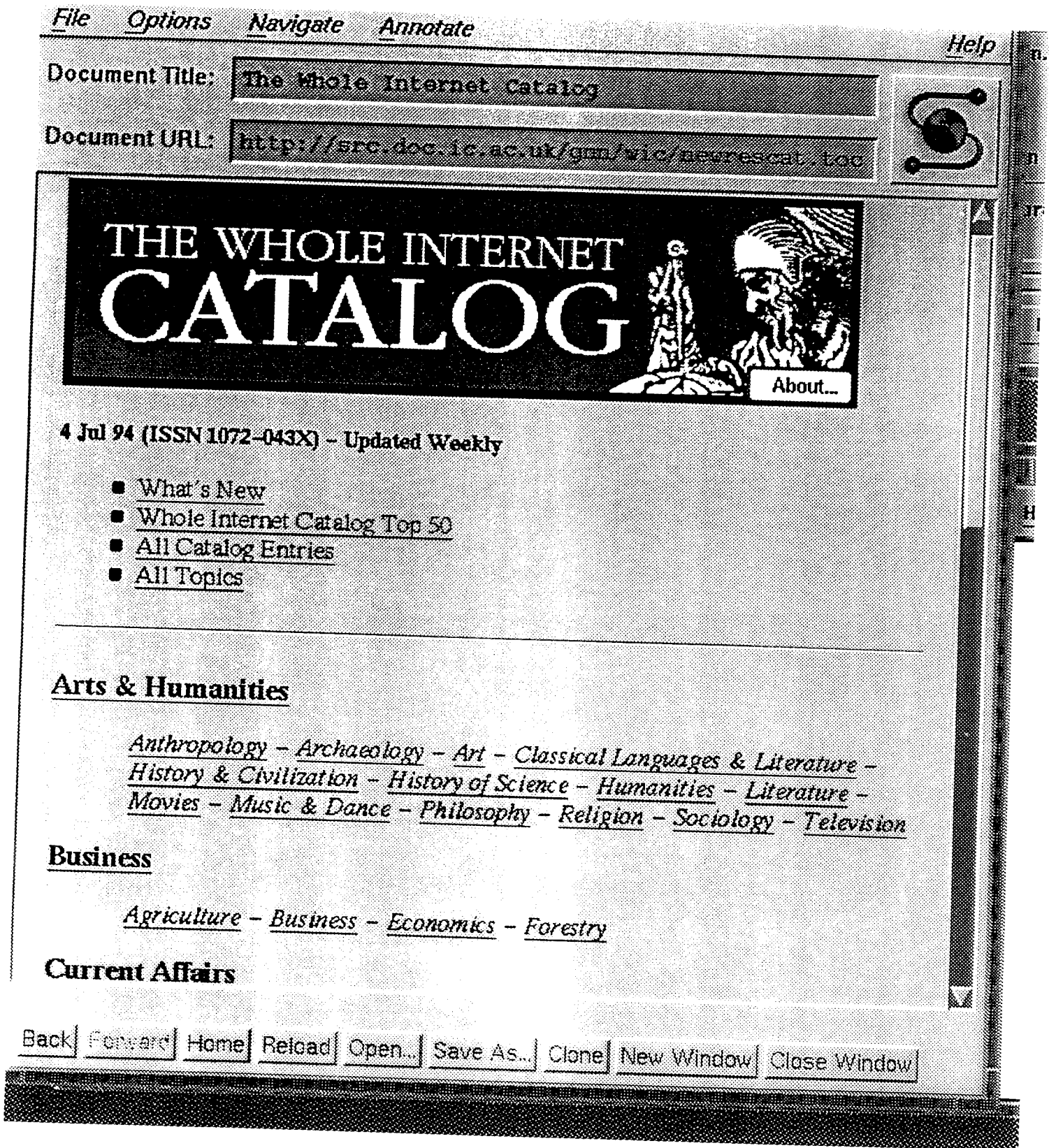


Fig.6

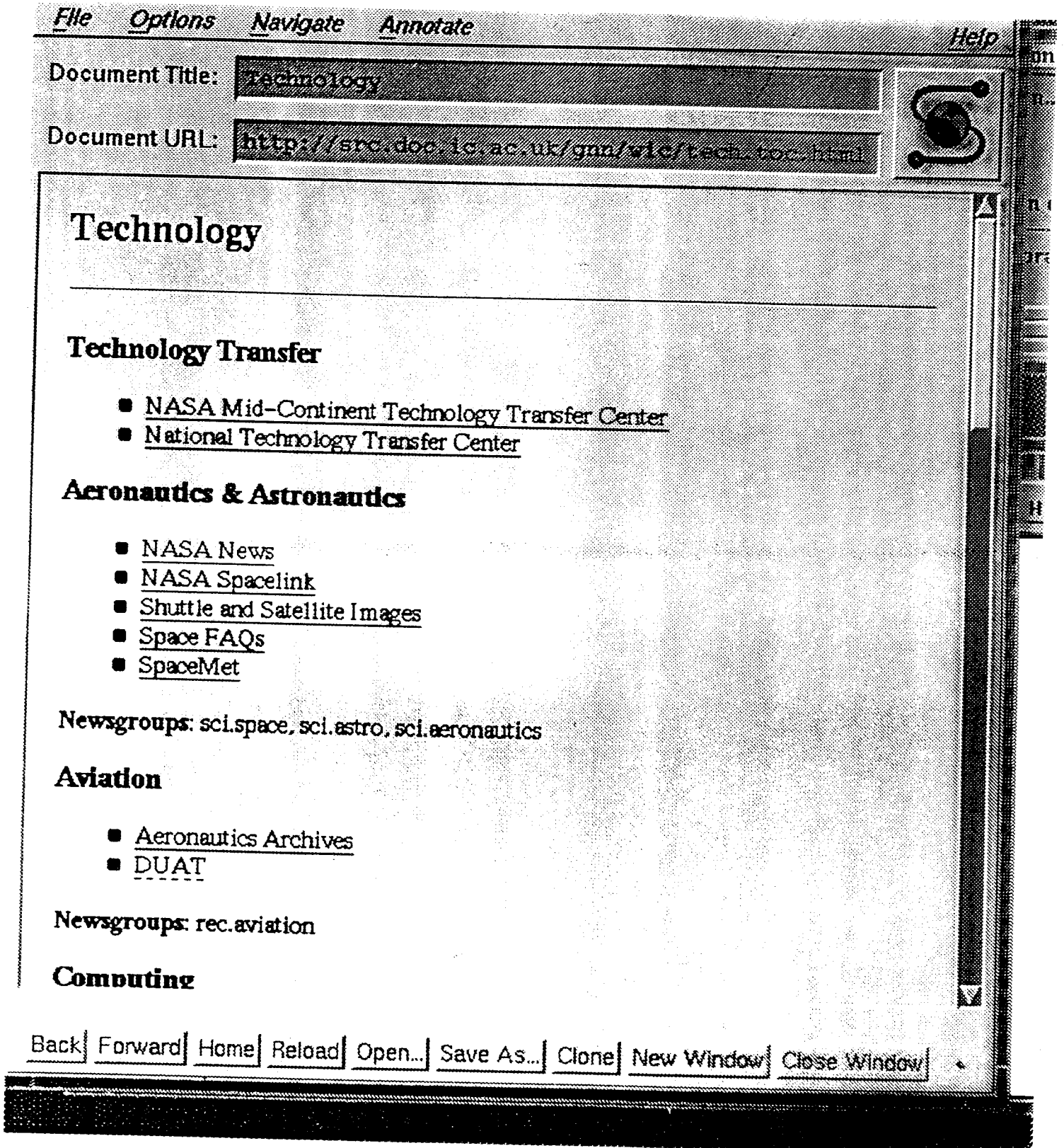


Fig.7

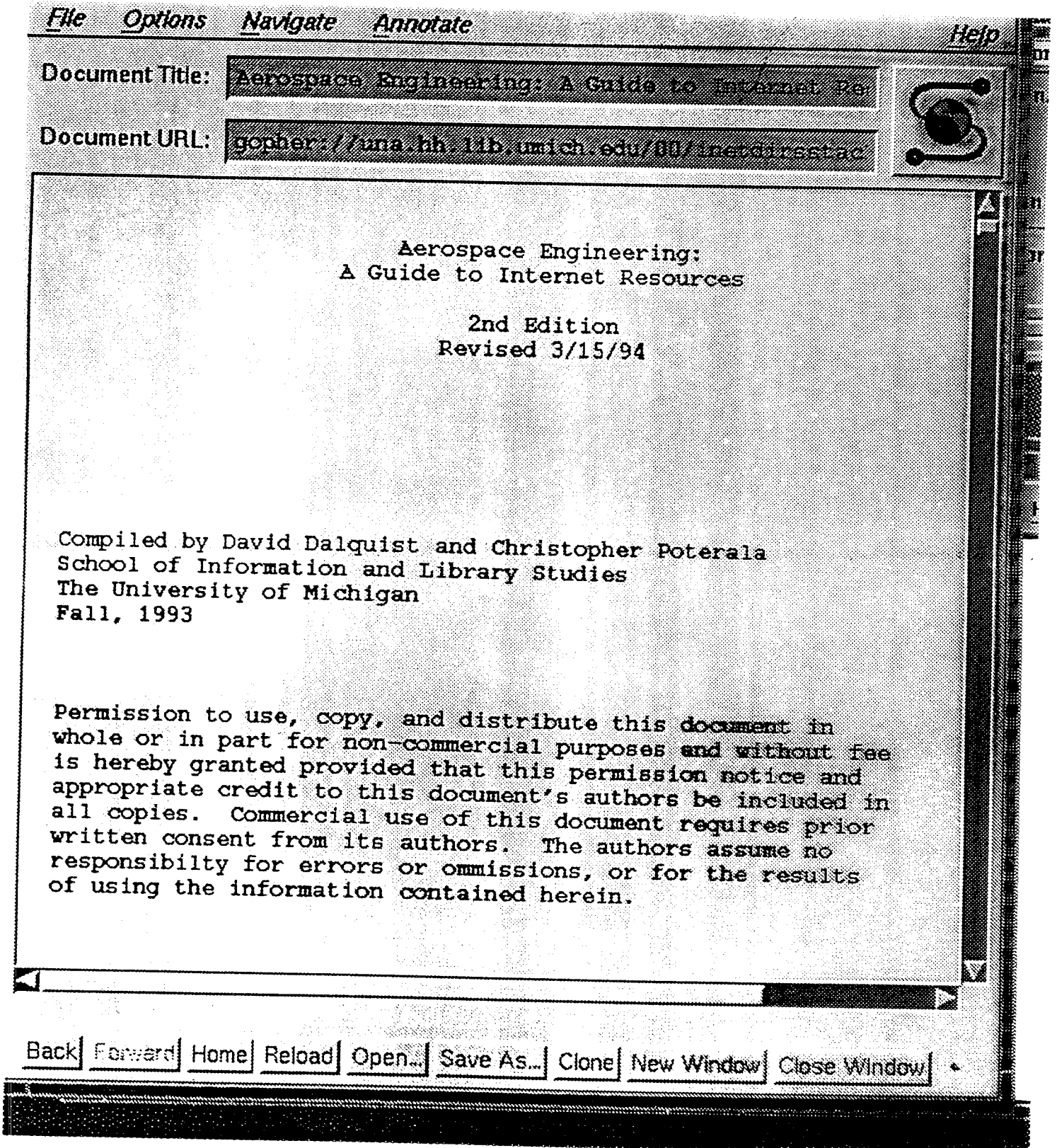


Fig.8

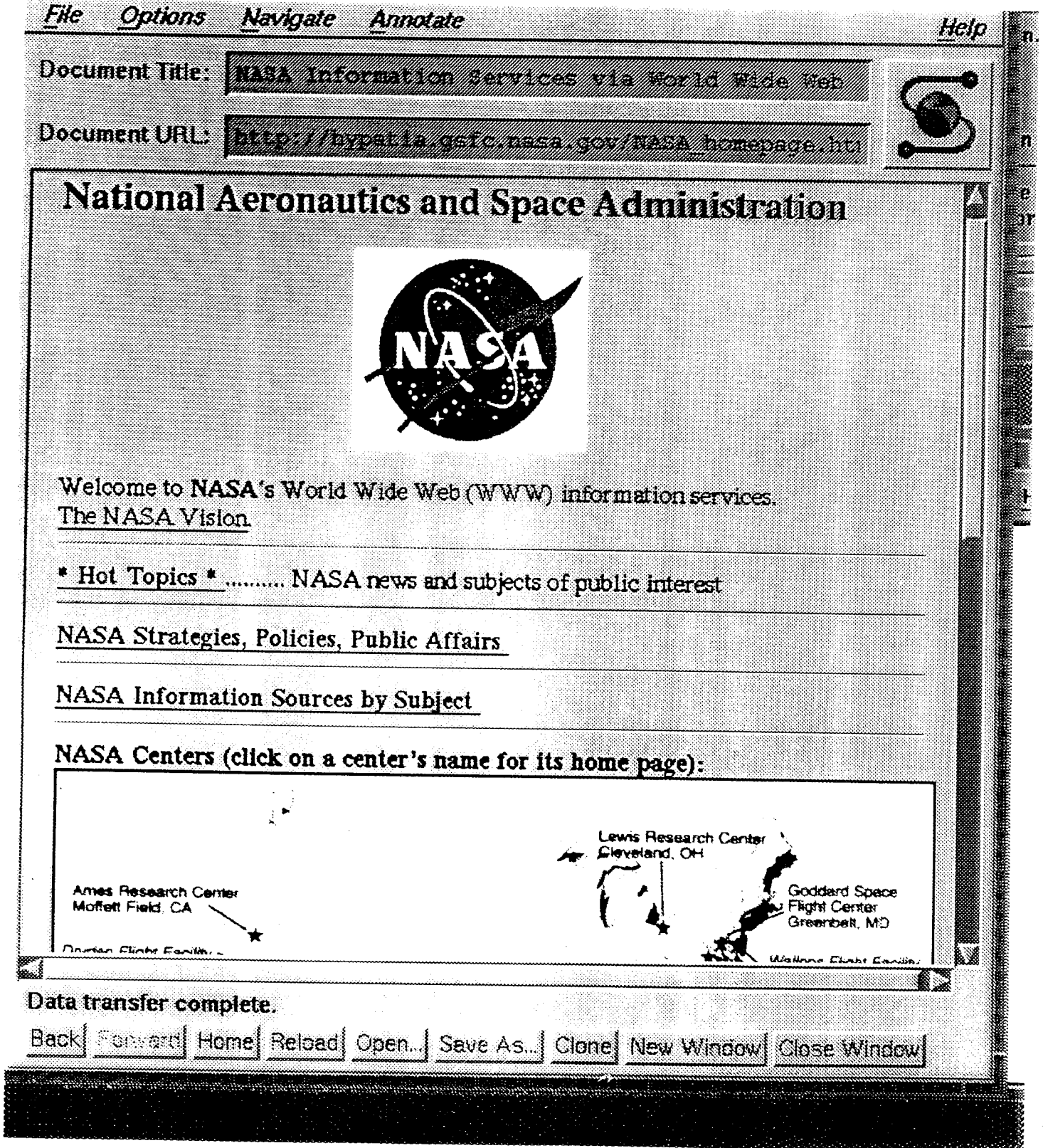


Fig.9

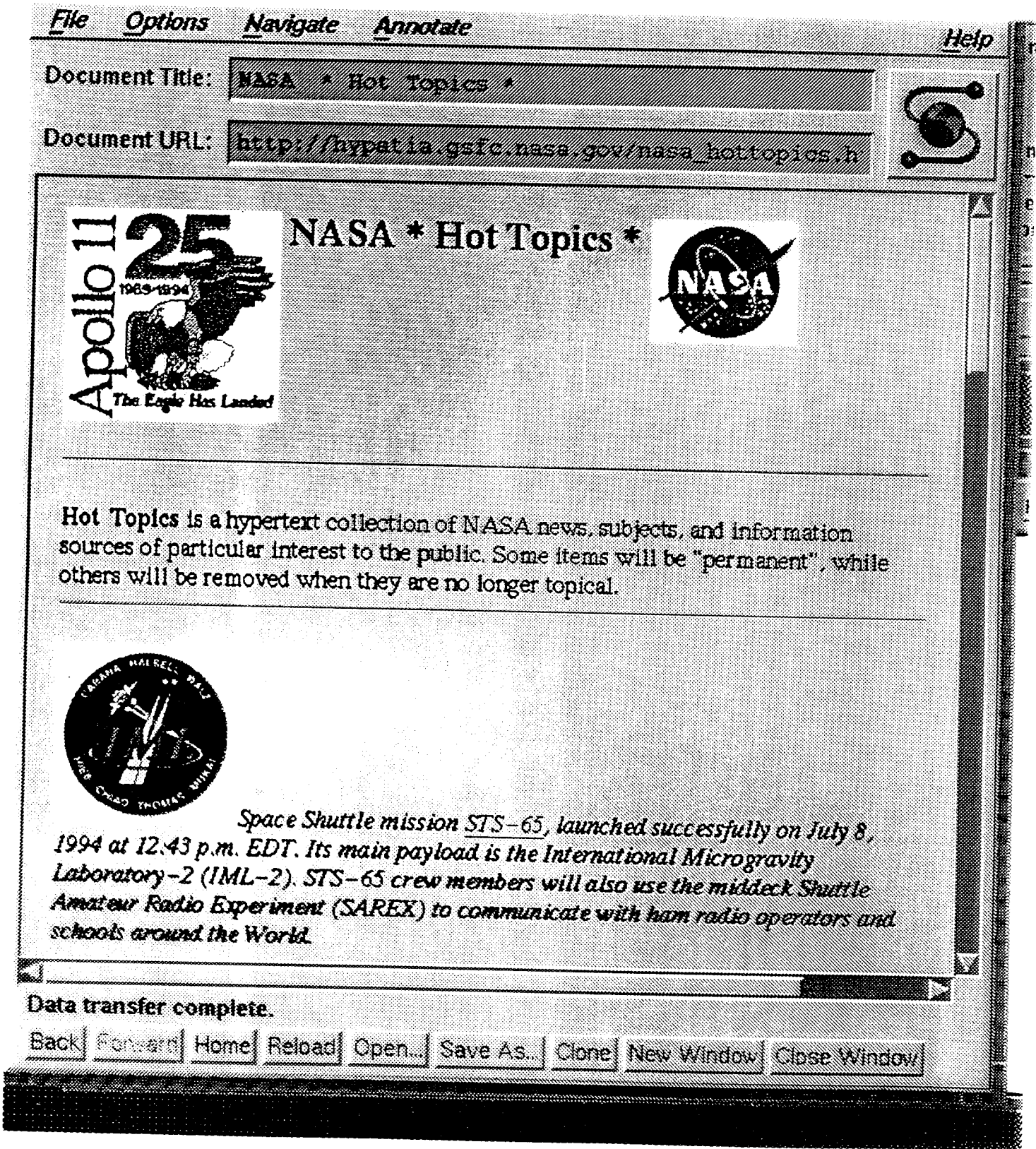


Fig.10

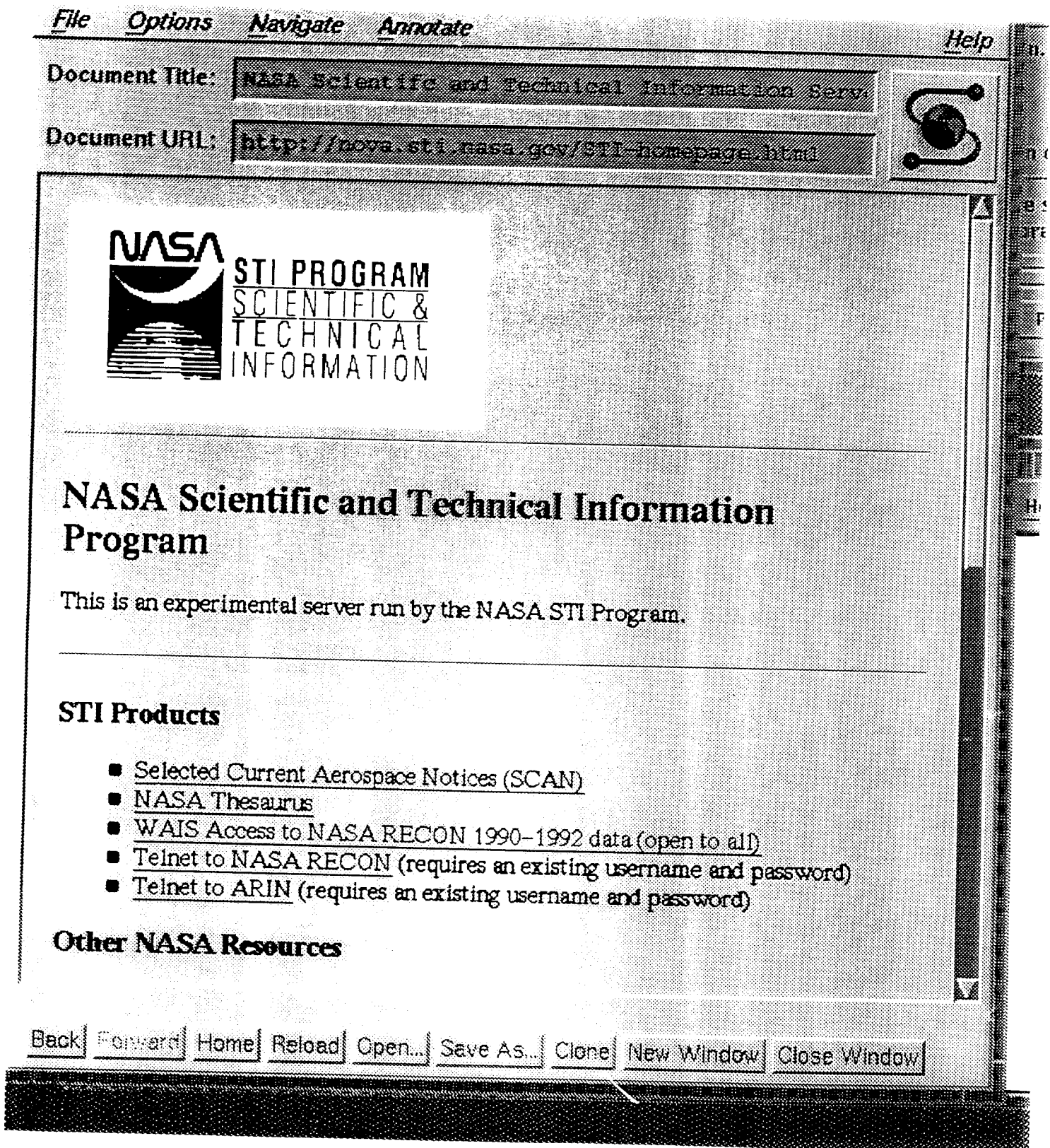


Fig.11

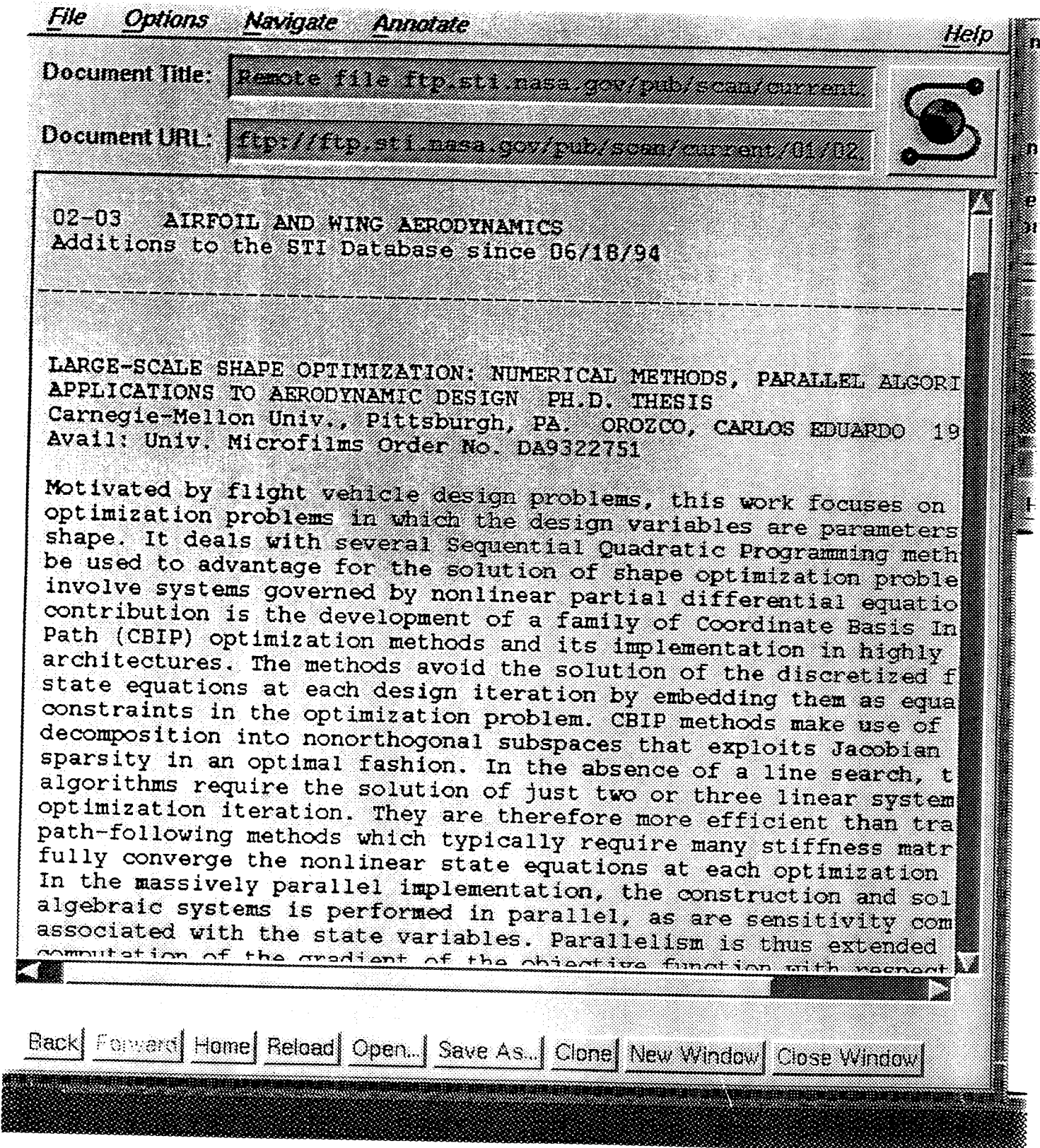


Fig.12

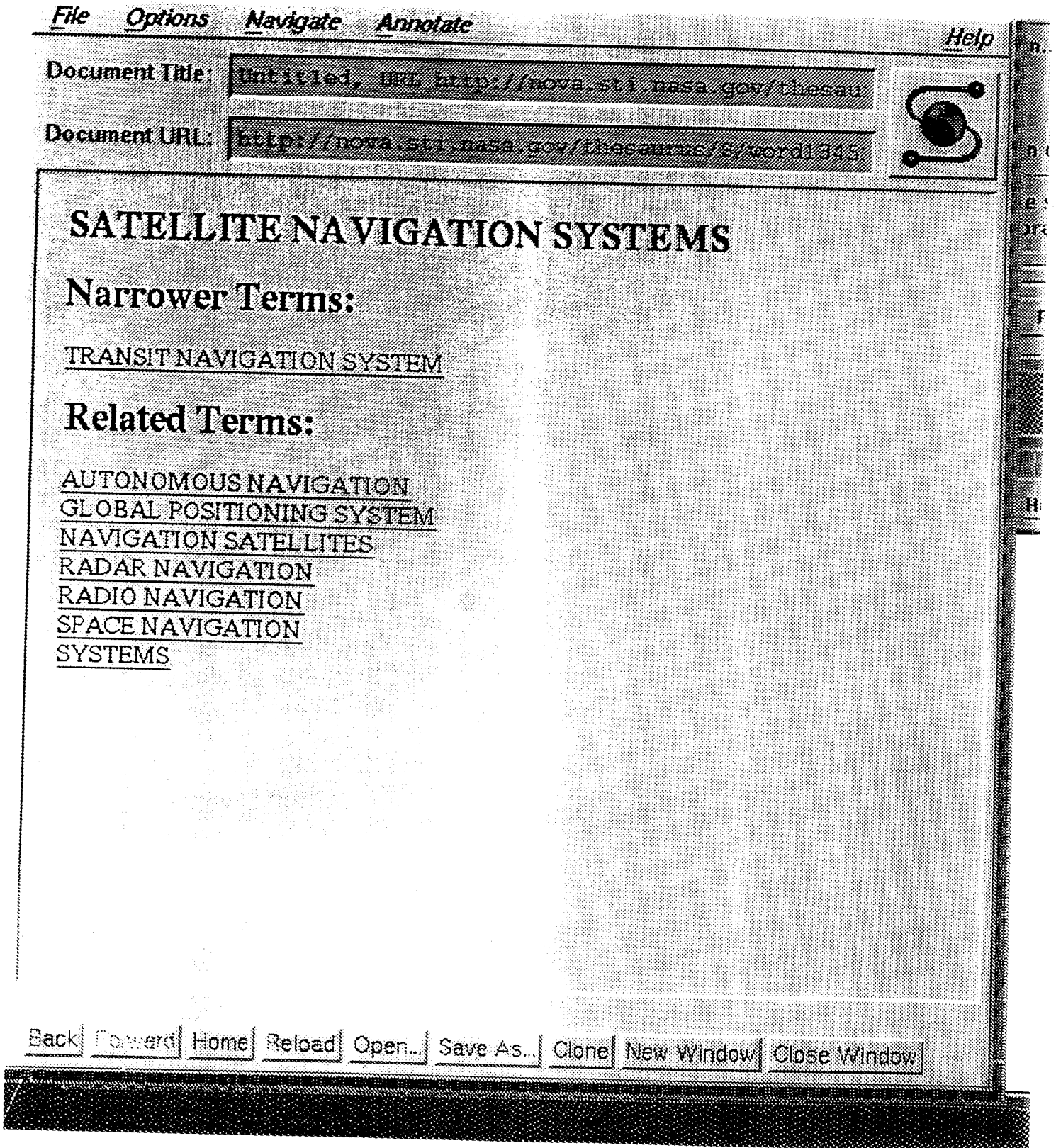


Fig.13

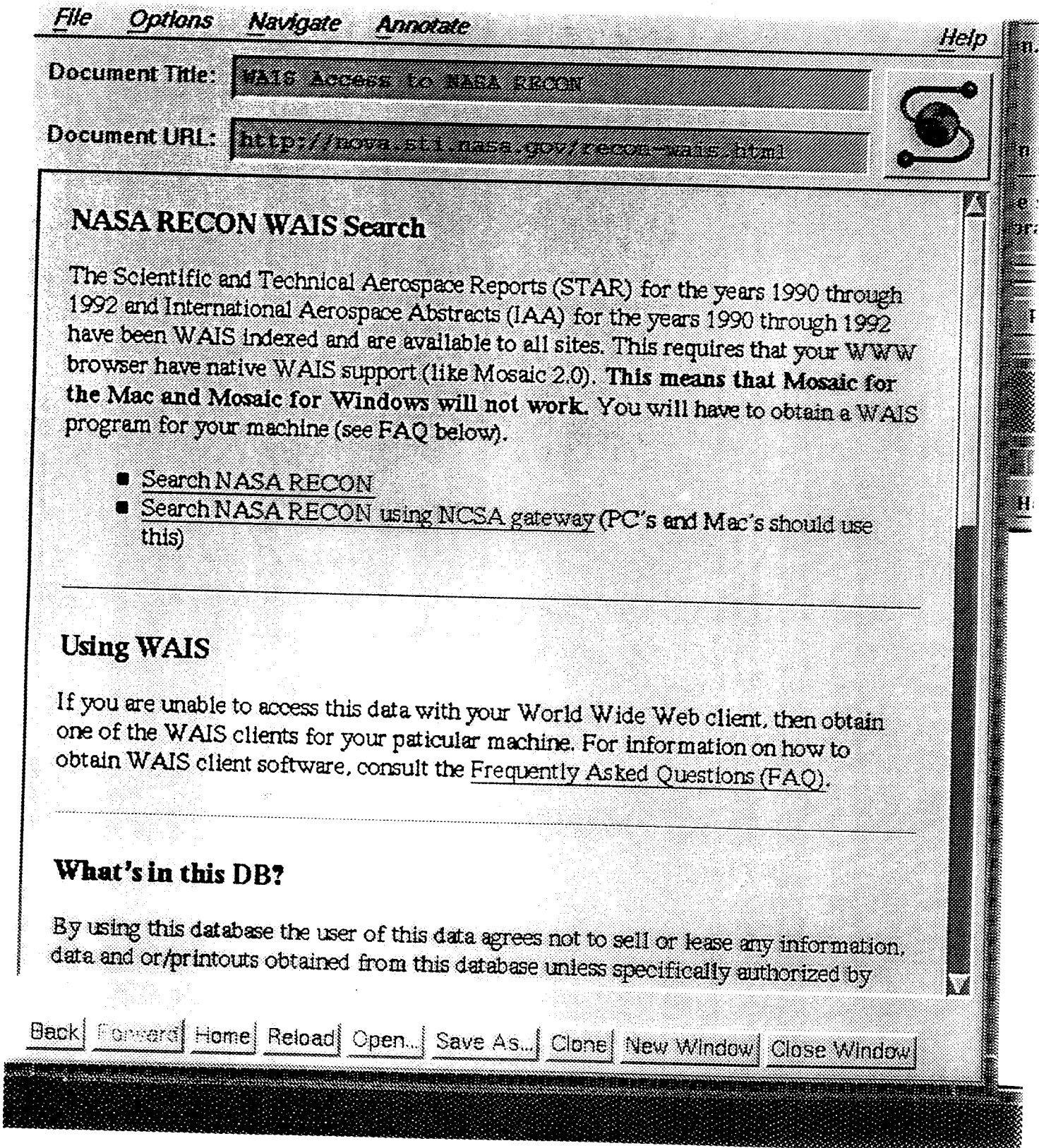


Fig.14

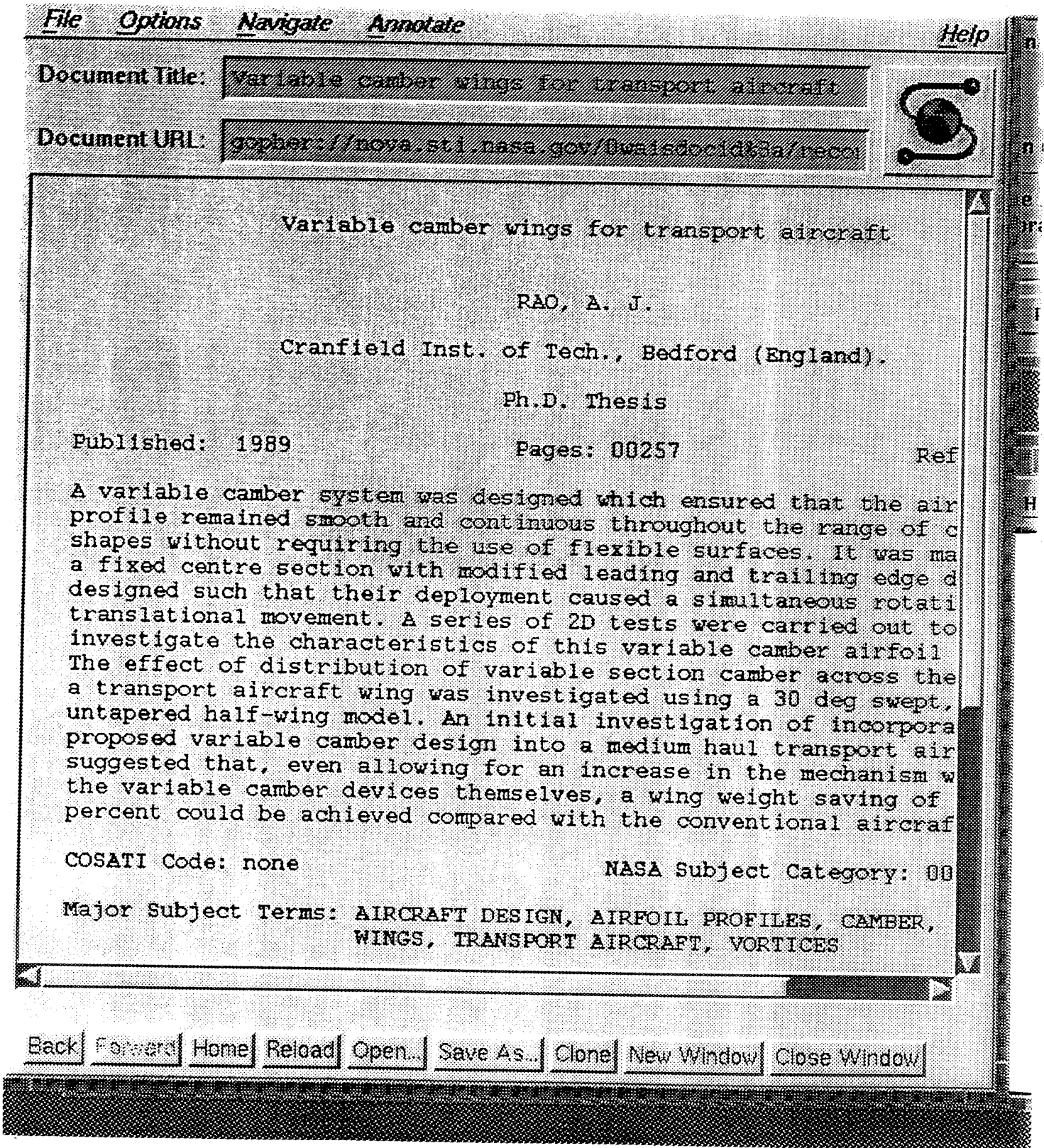


Fig.15

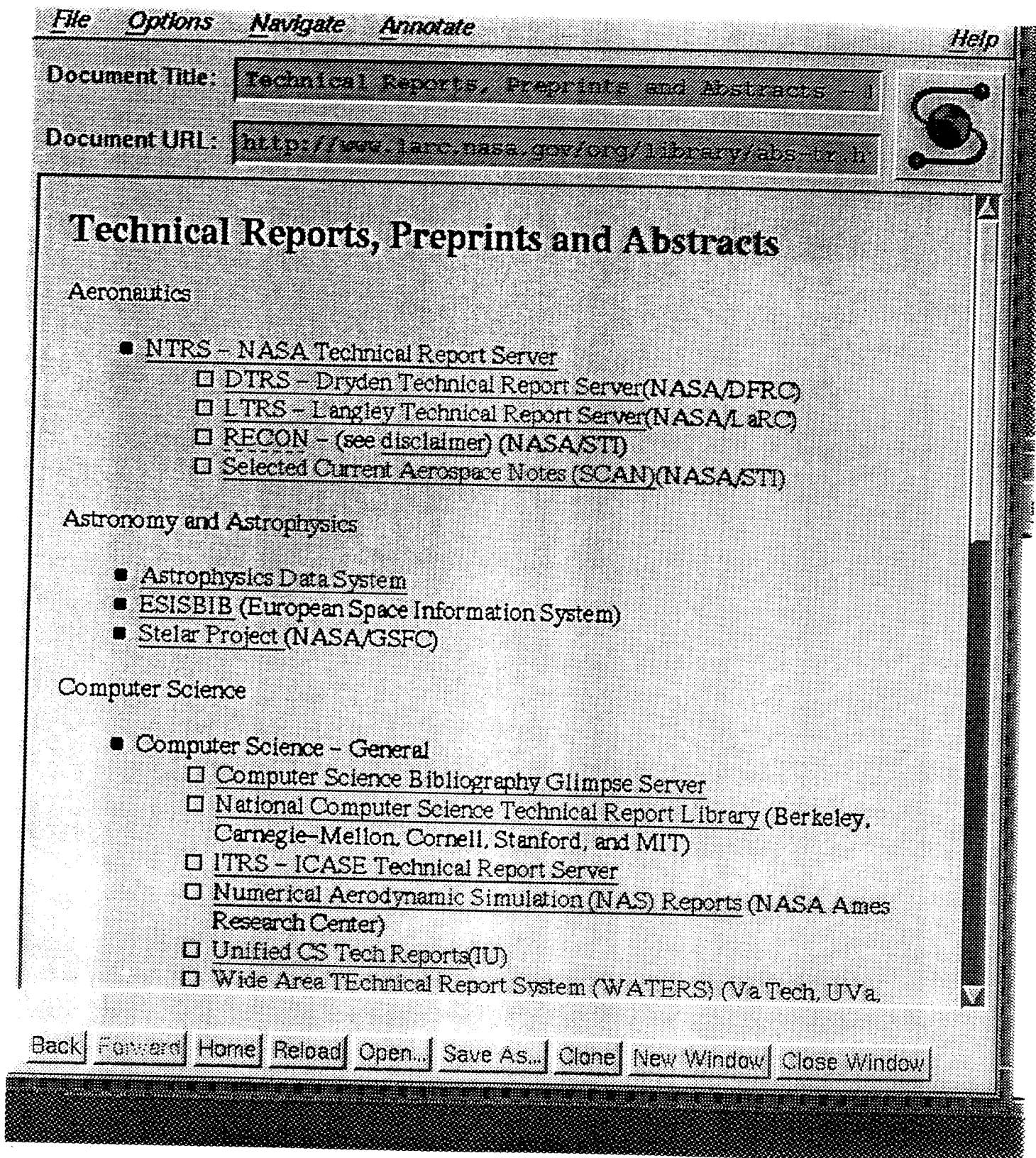


Fig.16

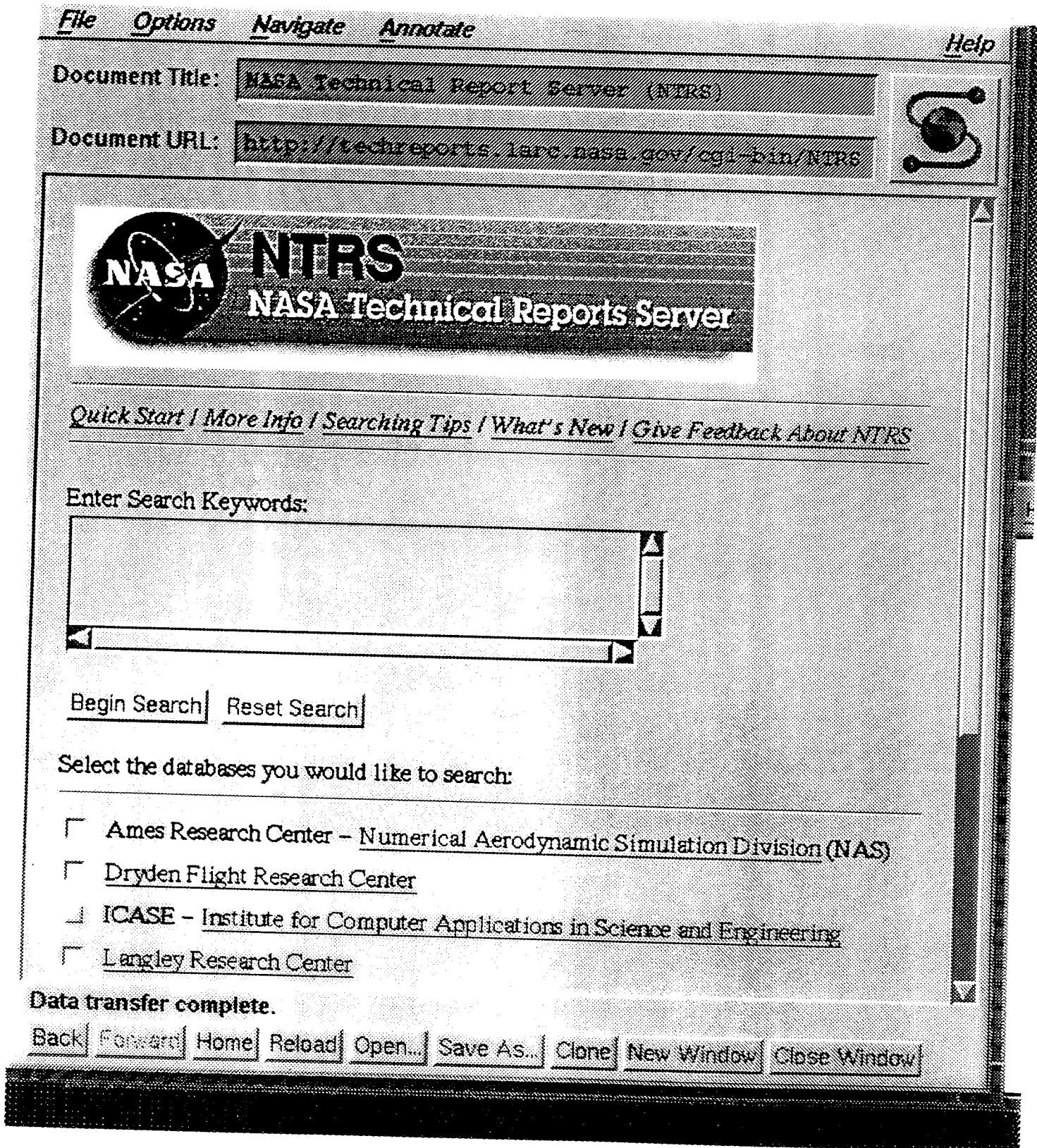


Fig.17

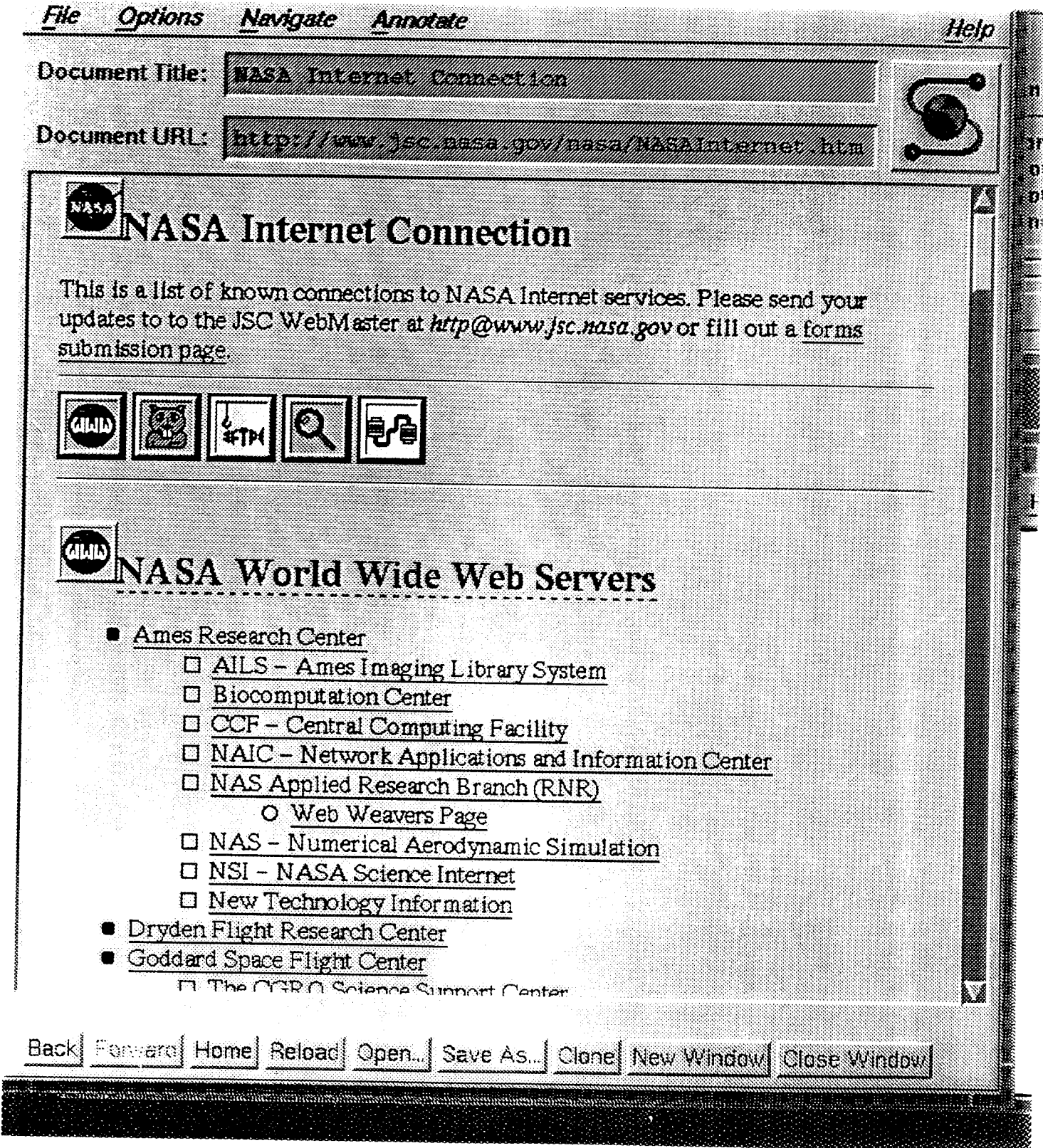


Fig.18

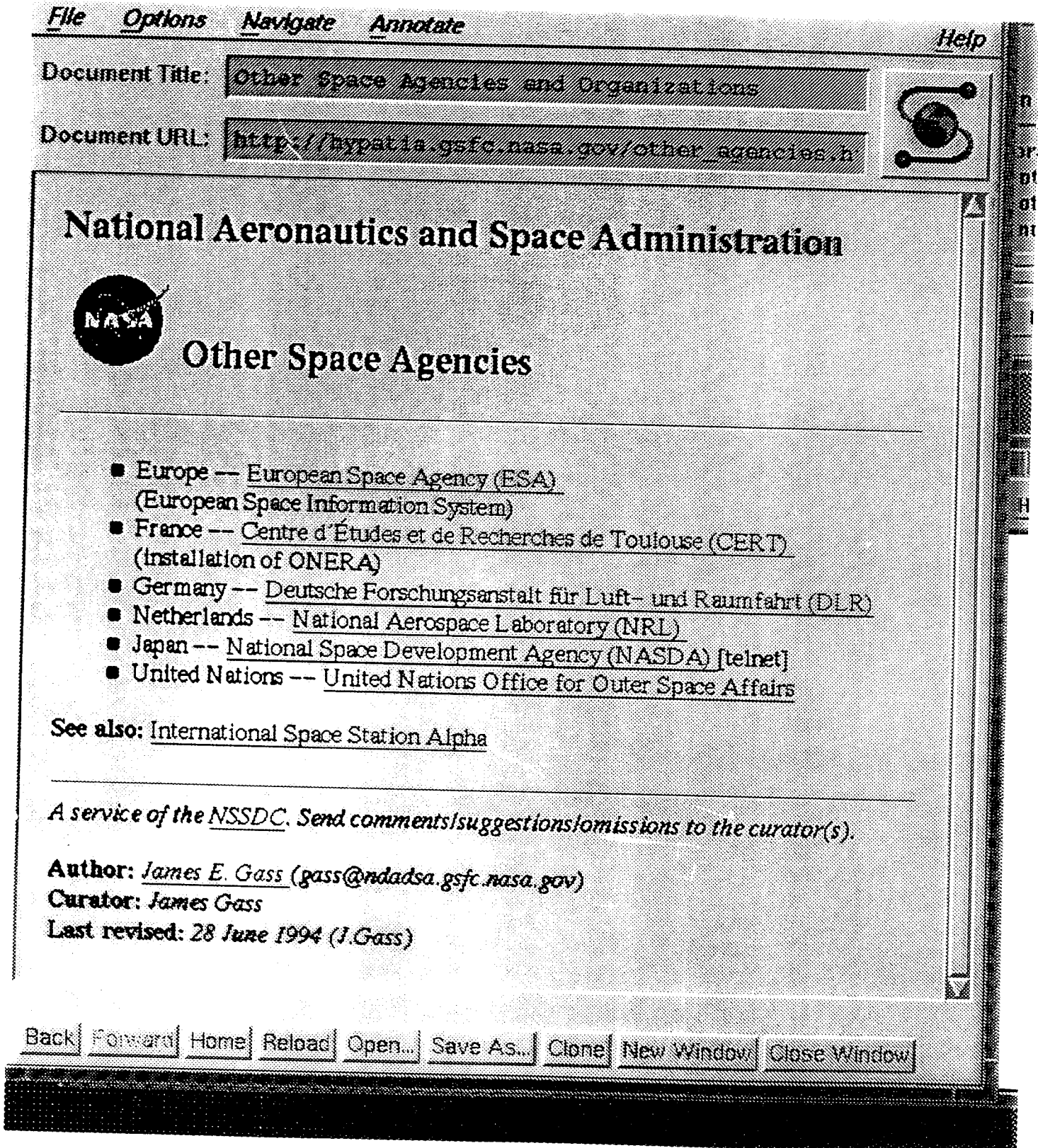


Fig.19

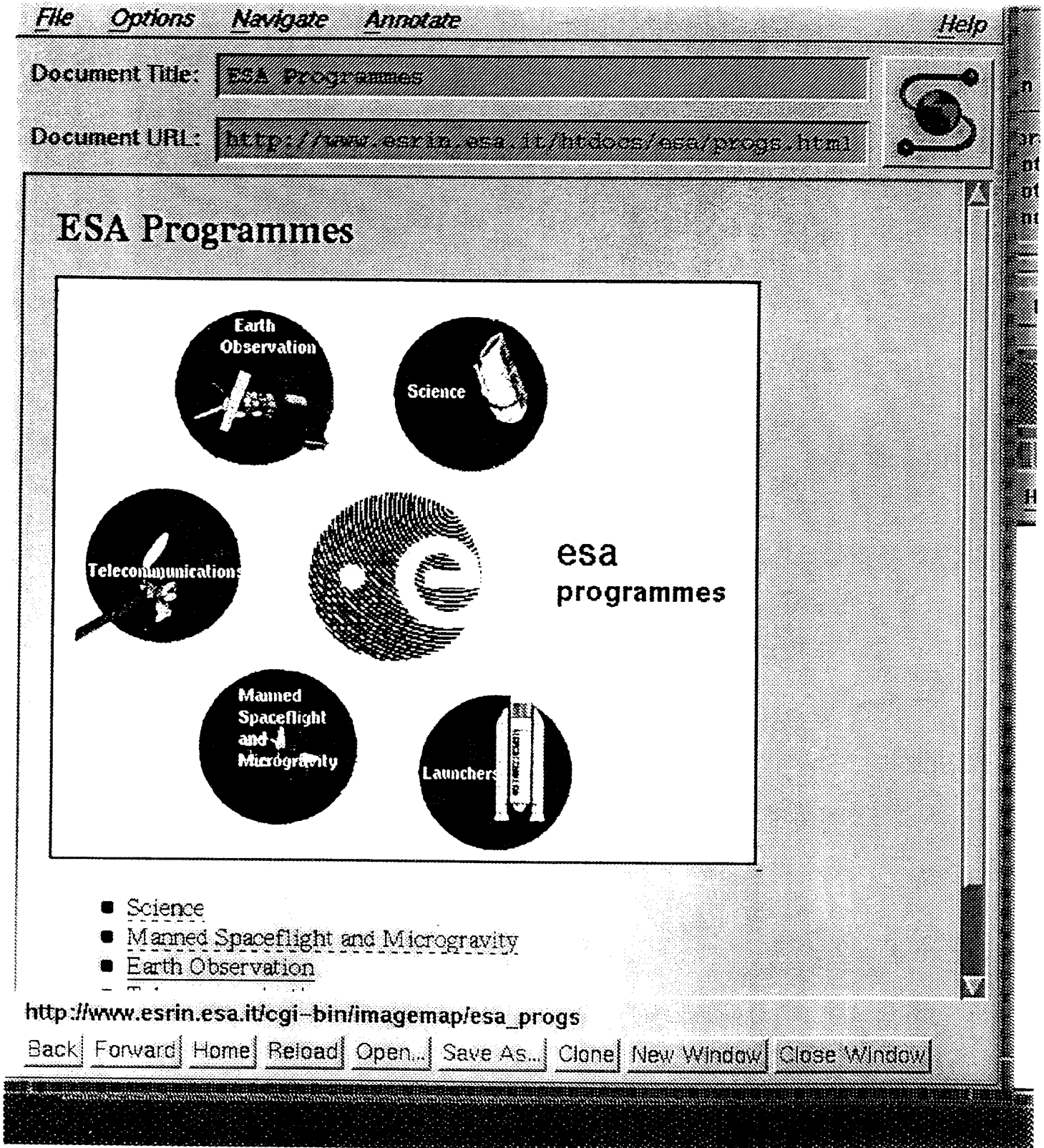


Fig.20

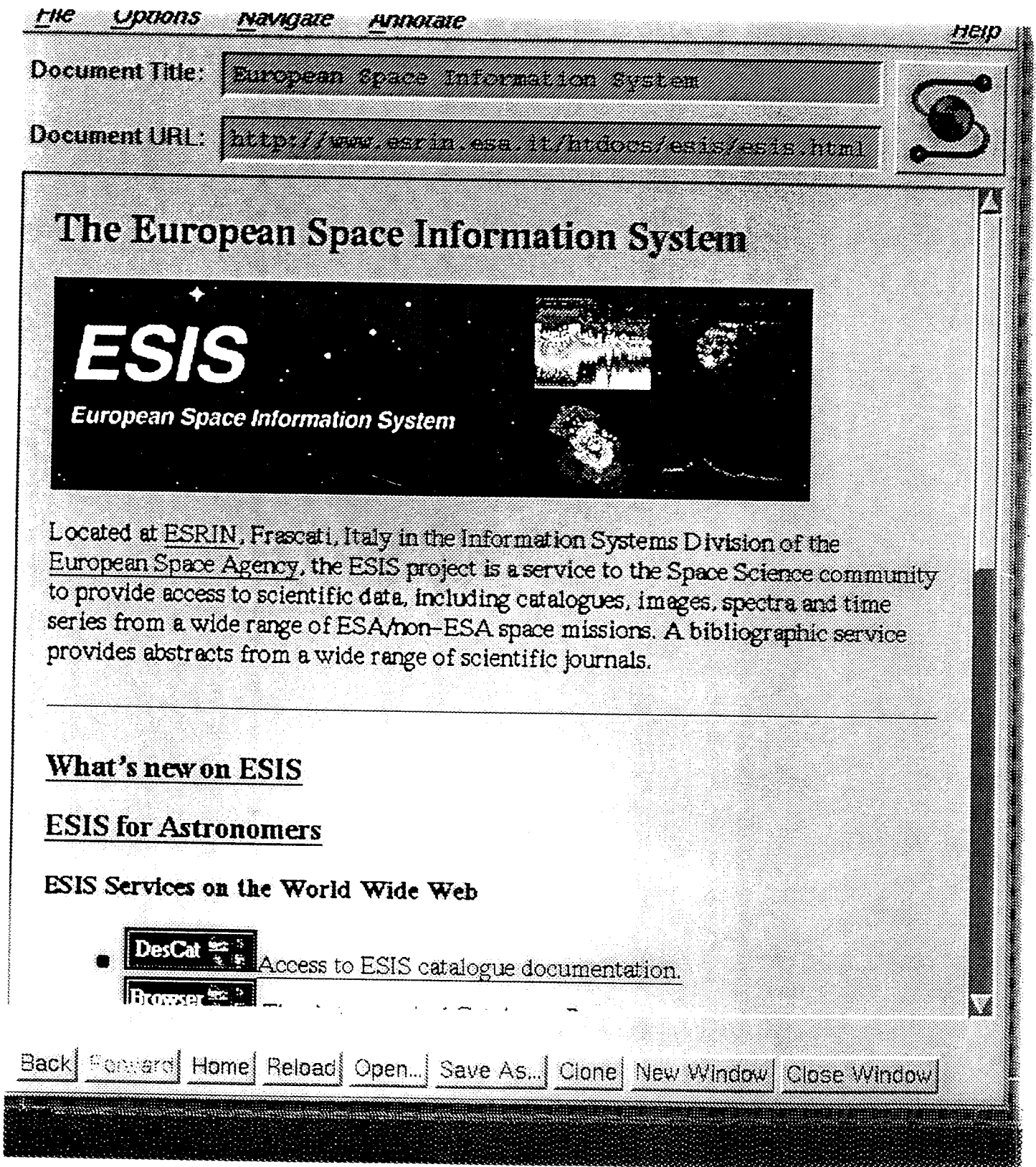


Fig.21

The image shows a screenshot of a web browser window. At the top, there is a menu bar with the following items: File, Options, Navigate, Annotate, and Help. Below the menu bar, there are two input fields. The first is labeled "Document Title:" and contains the text "Full text papers from ESIS staff". The second is labeled "Document URL:" and contains the text "http://www.esrin.esa.it/htdocs/esis/papers/li". To the right of these fields is a small icon of a globe with a satellite orbiting it. Below the input fields, there is a large rectangular area containing a list of seven references. The list is titled "Full text papers from ESIS staff" in a bold font. The references are numbered 1 through 7 and describe various papers and proceedings related to the ESIS project. At the bottom of the browser window, there is a toolbar with the following buttons: Back, Forward, Home, Reload, Open..., Save As..., Clone, New Window, and Close Window.

File Options Navigate Annotate Help

Document Title: Full text papers from ESIS staff

Document URL: http://www.esrin.esa.it/htdocs/esis/papers/li

Full text papers from ESIS staff

1. S.G. Ansari: 1992, Archival Astronomy with ESIS: III. Potential candidates of RS Canum Venaticorum Stars *Proceedings of Astronomy from Large Databases, Haguenau, 14 - 16, September, 1992, eds. A. Heck, F. Murtagh*
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Back Forward Home Reload Open... Save As... Clone New Window Close Window

Fig.22

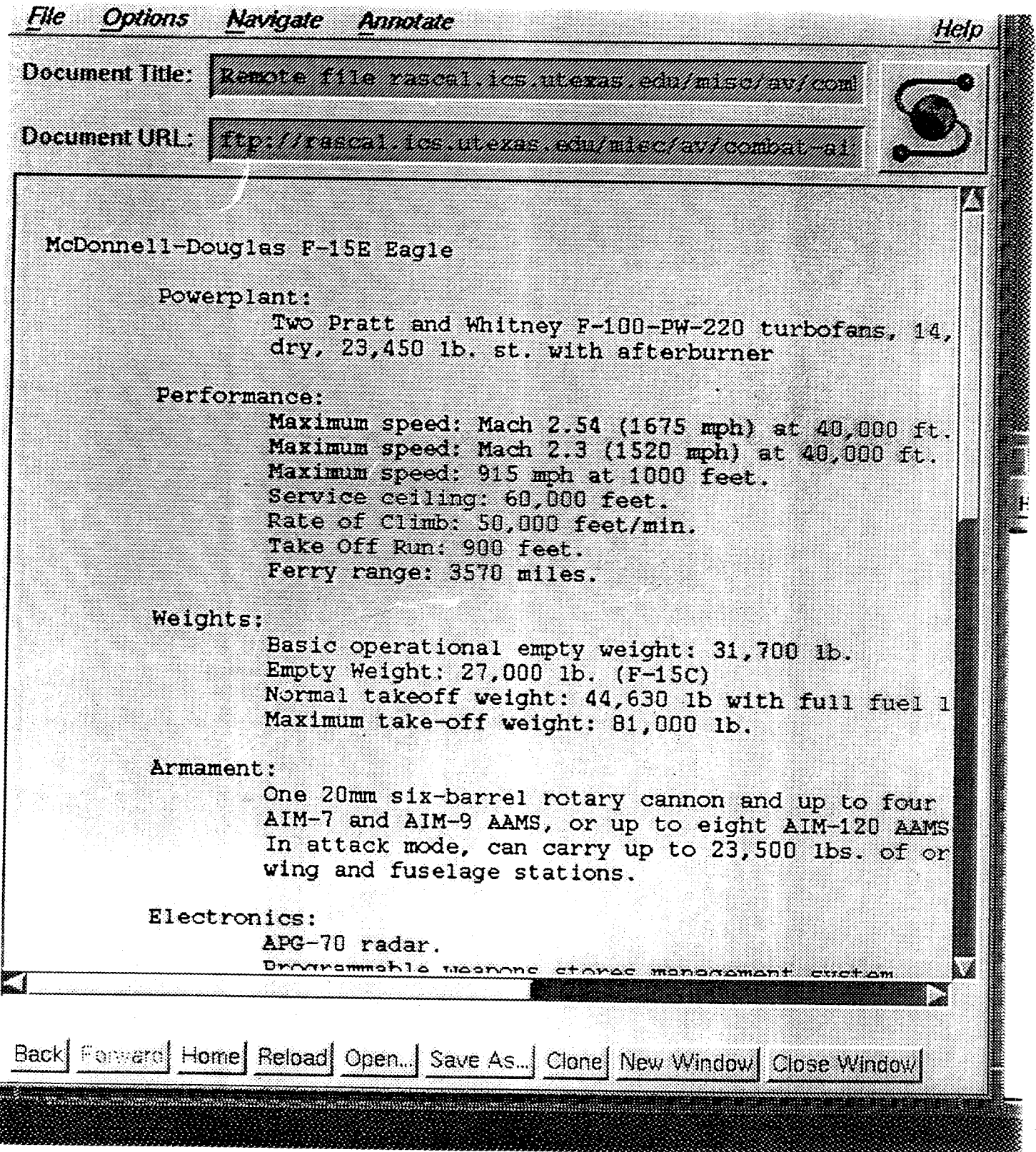


Fig.23

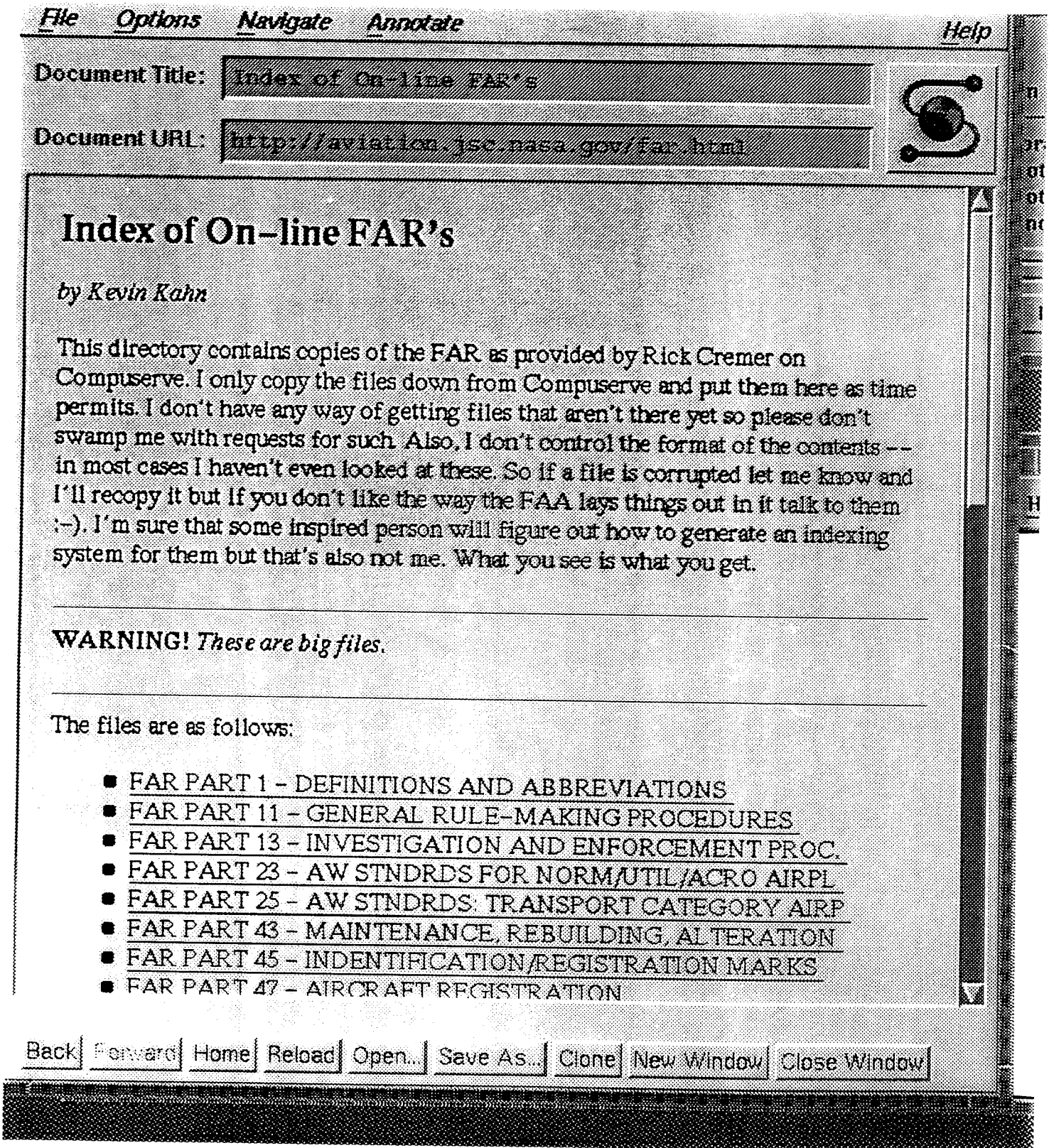


Fig.24

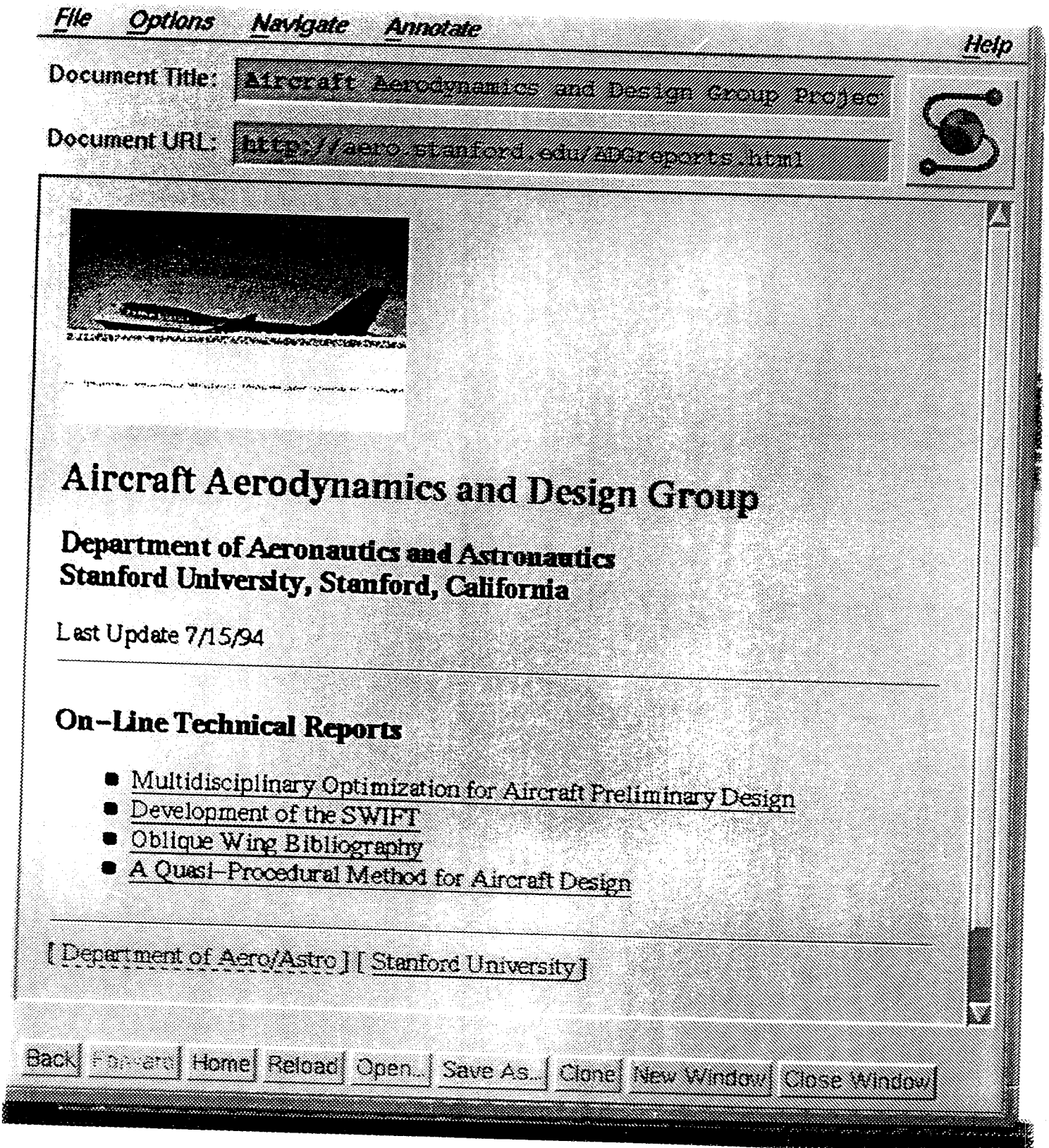


Fig.25

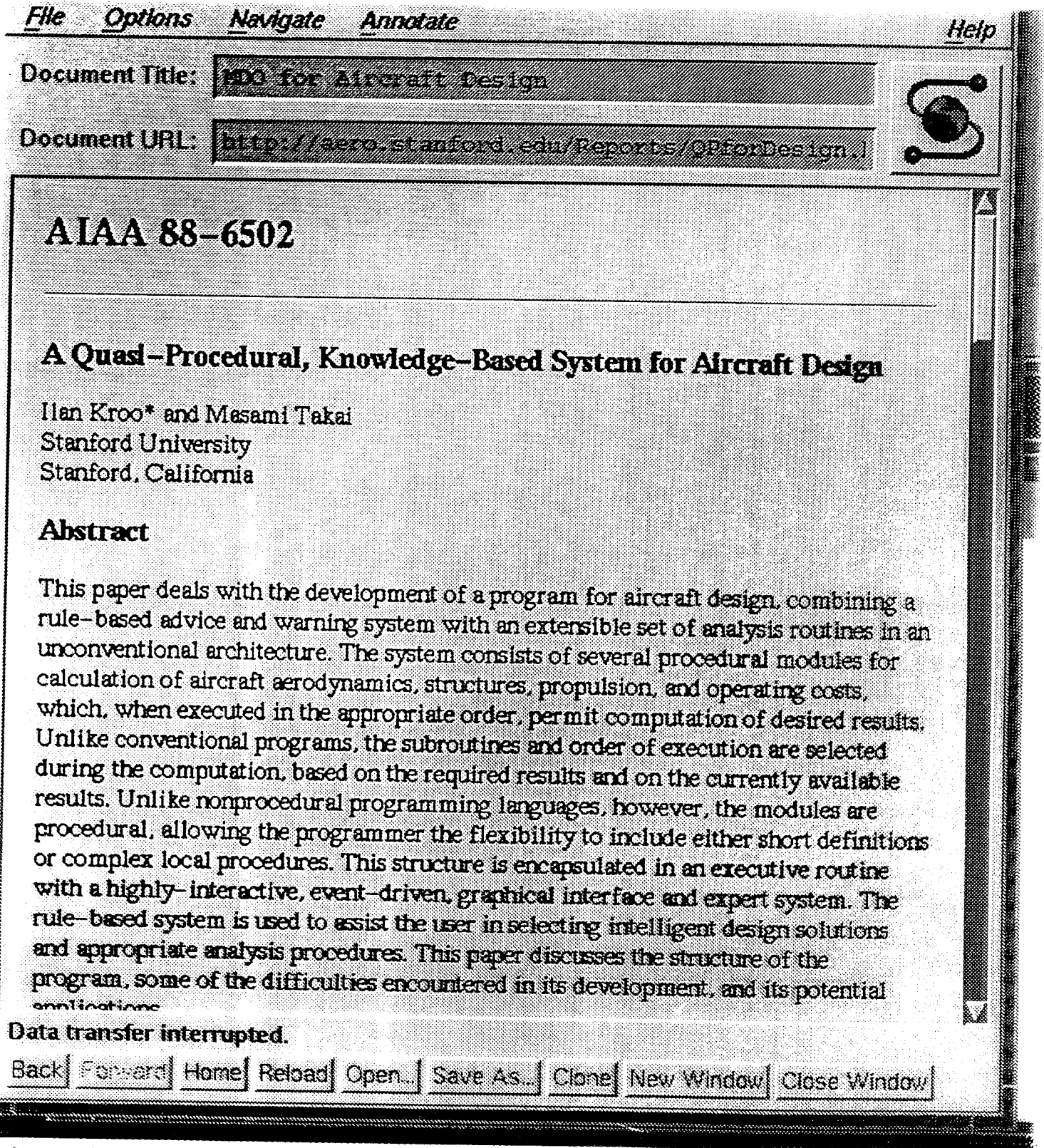


Fig.26

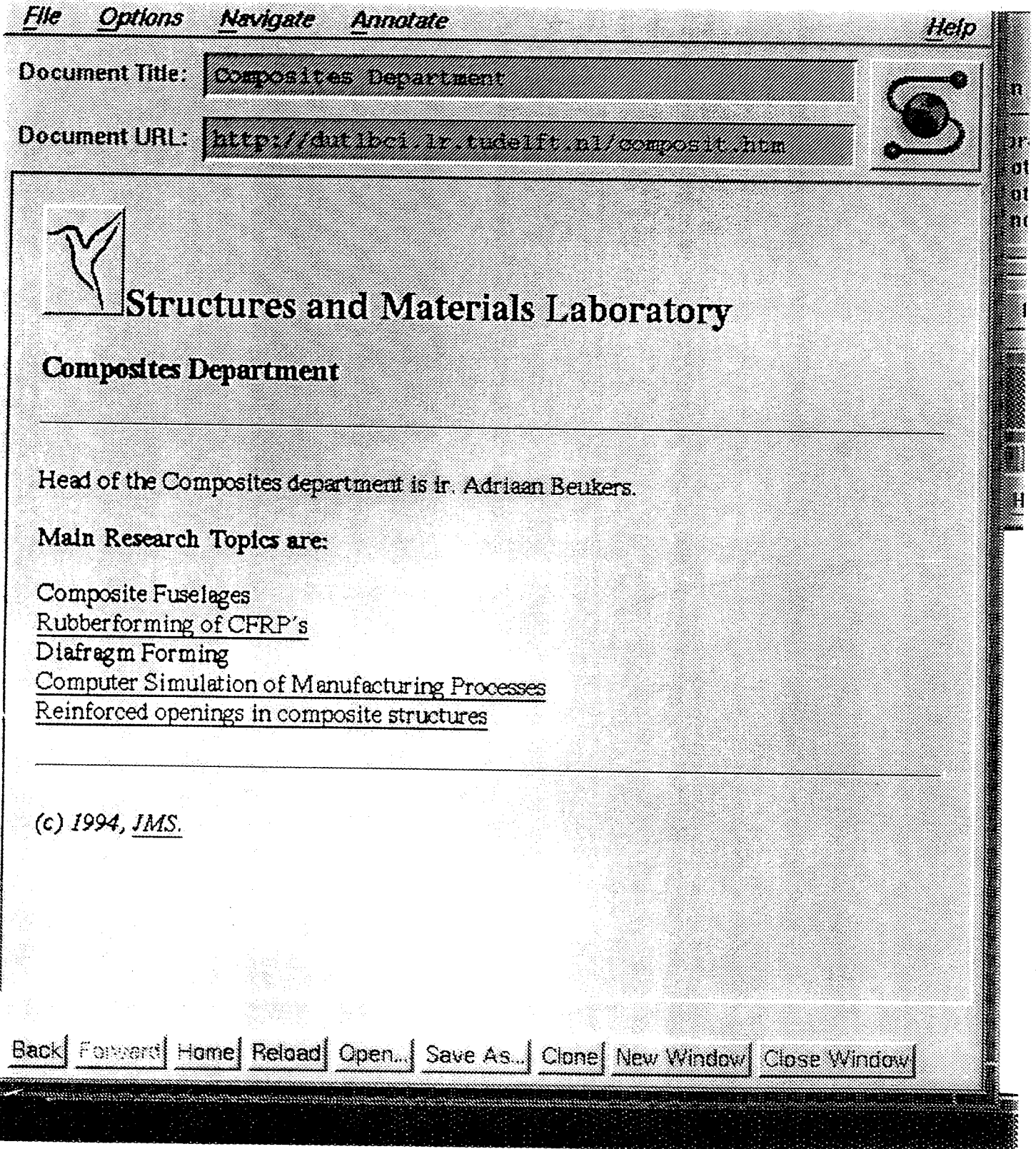


Fig.27

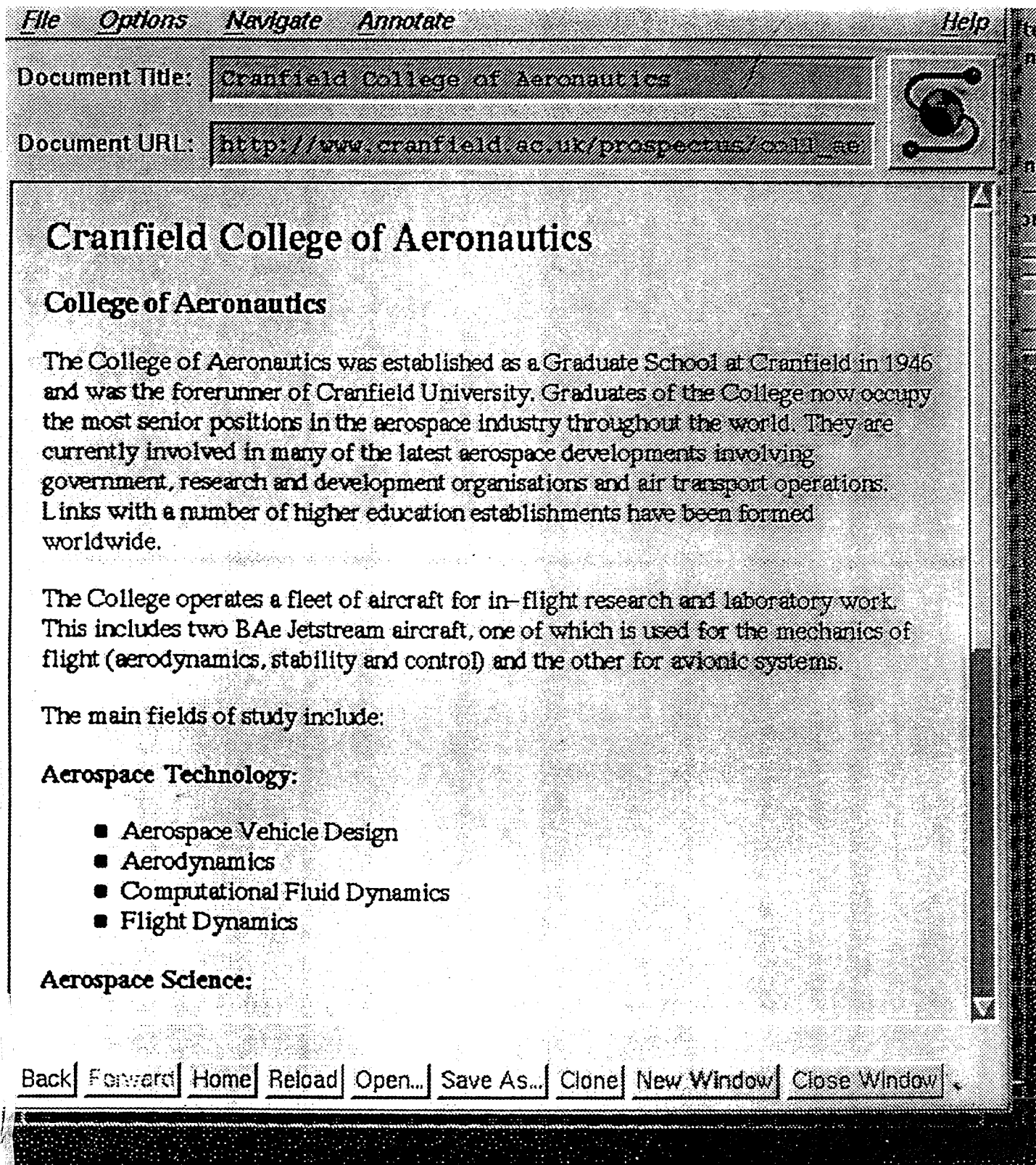


Fig.28

