

ELECTRONIC PUBLISHING: NOW AND THE FUTURE

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Electronic publishing of journals has already arrived, and is established. The *Astrophysical Journal and Letters*, *Astronomy and Astrophysics Supplements* and *New Astronomy* have been publishing a parallel electronic edition since the beginning of 1997. *Astronomy and Astrophysics* will follow in 1998, and the *Monthly Notices of the Royal Astronomical Society* are being developed. The American Astronomical Society has been the leader in developing electronic publishing in astrophysics. They have led not only by being first, but also by the high standards of their electronic publication.

One of the stories that school children in Great Britain learn at an early age is about King Canute II. Canute was a Danish king who ruled part of what is now Great Britain from 1016 to 1035. He is famous because he sat by the sea as the tide was coming in and commanded the tide to go back. It did not.

Electronic publication is going to bring many changes to the way research is done and published. There are obvious advantages and disadvantages. There are certainly problems which we have not yet realized. The purpose of this Joint Discussion is to stimulate a discussion of what the international astrophysical community would like from electronic publishing. Please do not say that you want electronic publishing to go away, because then you will be behaving like King Canute. But the publishers of journals and the bodies responsible for maintaining the quality of publication are feeling their way into completely new territory. To exploit electronic publishing to the full, and to minimize the disadvantages, discussion in the community is needed.

Electronic publishing will bring great connectivity into journals. While looking at one paper, a click on the mouse will immediately connect with another paper published in another journal. Large tables, theoretical or observational, will be read in the same way from databases. An electronic publication will longer be static. It can be modified to refer to papers published later, it can contain movies or computer programs that can be executed online.

Electronic publishing of a journal is different from a preprint server. A journal, be it on paper or electronic, has a refereeing system. In many cases this process improves the readability and consistency of papers. A preprint server is automatic and uncontrolled. Will preprint servers eventually destroy the journals? A somewhat surprising result of the Joint Discussion was a poll on the question of should peer review be preserved. Everybody present voted yes, with no one voting no and no abstentions.

The most worries were expressed over archiving and the function of the libraries. Who should be responsible for preserving the electronic archive? One can still read Newton's *Principia* after three hundred years. Will we be able to read a comparable piece of work published electronically after three hundred years? We cannot buy a record player any more to play the old gramophone records that went at 78 rpm. Traditionally the keeper of the written archives has been the libraries. What is going to be the function of a library in the age of electronic publishing, and can they afford the extra costs that it brings?

The other main worry is the networks. The internet networks are already very slow at some times. This can be helped by mirror copies of the journal on different continents. In most countries, the scientific user of the internet does not pay the bill for the network connections. But as networks expand in capacity, the unit cost has been decreasing rapidly. Look at the cost of international telephone calls.

How will all this impact on developing countries? Officially almost all countries have email connections. But in practice in some countries it does not work at all. Will this increase the

gulf between scientists working in the developed and developing countries? One cannot restrain developments worldwide because some countries cannot keep up, but certainly in that development one must consider how the scientists in those countries can best be helped.