



AAE news

PUBLISHED BY THE ASSOCIATION FOR ASTRONOMY EDUCATION

Vol. 1, No. 1.

September, 1981

WE HAVE LIFT-OFF !!



The ASSOCIATION FOR ASTRONOMY EDUCATION was raised off the ground earlier this year.

Its chief aim is the promotion of Astronomy Teaching and Education in the UK at all levels.

Included in its aspirations is the provision of a forum and sounding board (meetings) for the interchange of ideas for Astronomy Education and for direct experiences to be aired.

This Termly Newsletter or Journal plans to support the forum in the form of a catalytic composition.

A MESSAGE FROM OUR PATRON:

Astronomy has a unique part to play in education both at school and university. It has a direct appeal to scientists and non-scientists alike; for many it may represent an introduction to scientific thought that would otherwise have been totally lacking. As a research discipline it is unequalled, bringing together elements of much of physical science. In our daily lives, if we have even only a little understanding of it, astronomy can inspire and uplift us.

I commend wholeheartedly the encouragement that the Association is giving to education in astronomy.

*Professor F Graham Smith
Royal Greenwich Observatory*

June 1981

EDITORIAL

We are hoping that this issue will set the style for future editions. Our page 3 should therefore regularly present witty and informative comment in the form of an Editorial!

As an organisation, the AAE has some defined principles and motives - these may be clarified as time goes on and others may emerge. Our current philosophy may be summarised as follows:

1. To increase the effectiveness of astronomy teaching at all levels through the exchange of information and experience by means of meetings and publications.
2. To establish and maintain co-operation through a network of astronomy resource centres in the UK by which practical support and advice may be given to those involved in astronomy education.
3. To promote a greater interest in, and awareness of, the rôle of astronomy in education.
4. To be a responsible body able to provide informed and authoritative assessments and advice on astronomy in education.
5. To develop, as necessary, aids for the teaching of astronomy and astronomical topics.

The first production of any enterprise raises many issues which become apparent only after the wheels have been set in motion. In some respects being the producer of a Newsletter gives one the feeling akin to that of a Private Schultz. We embark, not knowing all the problems, but we will sidestep or overcome them as they arise - we will not make a fortune but will gain in the end at least one of our elusive objectives.

The format of the first issues of the Newsletter has been dictated by the means of printing immediately available to us and, of course, the cost; the weight of each issue will be up to the limit of the first band for second class post.

As for the content, the emphasis will definitely be on Astronomy Education in its broadest aspects. We would like to see articles for and from all levels - Primary, Secondary, Higher Levels and General Public Education will all be encompassed. Ideas for projects will be presented, particularly those which have been tested in the field. Experiences from the teaching environment will be relayed. If you have anything to offer here, let your Editor know; articles you wish to have published or views you wish to air will be warmly welcomed. Please send them in without delay.

We all wish ourselves good luck in our venture.

David Clarke
Glasgow University Observatory

* * * * *

Our Editor is Senior Lecturer in Astronomy at the University of Glasgow. He is a member of the International Astronomical Union and participates in Commission 46 (Teaching of Astronomy). He has also served on the Education Committee of the Royal Astronomical Society. Over the years he has developed various teaching demonstrations and equipment. Included in his list of publications are two student Astronomy texts written in collaboration with his colleague, Professor A E Roy. His researches involve work on optical telescopes and he has visited many major observatories around the world.

INTRODUCING OUR PRESIDENT

Donald J Gold, BSc, BCom, lists as his prime activity "lifelong amateur astronomer" although he has had a varied career in journalism, teaching and the Civil Service.

A former HM Inspector for Further Education with the Department of Education and Science, as a Business and Management Studies specialist, he promoted astronomy wherever he could.

He was appointed secretary of the DES Working Party set up to investigate the promotion of the teaching of astronomy.

He is a member of the British Astronomical Association and the Geologists' Association.

PRESIDENT'S LETTER

WE HAVE ARRIVED BUT THERE IS A LONG WAY TO GO!

A great step forward in the promotion of astronomy education in this country has been taken with the setting up of the Association for Astronomy Education. Our objectives are clear and concise and, given time, we should see the realisation of our ambition to promote astronomy education at all levels in schools and colleges so that the subject takes its rightful place in our educational system once more.

I am proud to have become the first President of the Association, having tried during the past ten years to co-ordinate interest in astronomy education so that by a collective effort we could really achieve something. It might be useful here if I were to describe the series of events which led to the formation of the AAF.

In the early 1970's, as one of HM Inspectors for Schools with the Department of Education and Science I suggested to the DES that something should really be done to promote astronomy education in our schools

and colleges of further education, in view of the importance of the subject in itself and also on account of the considerable interest which had been generated as a result of the space programmes of the USA and USSR.

DES asked me to make some proposals and I carried out, with a colleague and friend, the late Alwyn Morris, a survey of planetaria and observatories where we knew there were organised visits from schools and where there was interest in developing activities of this kind. We also visited a few schools where some attempt was being made to provide education in astronomy - not necessarily of a formal kind but at least some attention to the wonders of the night sky and the elements of the subject.

As a result, I wrote a short report (1976) with suggestions and listed various institutions (planetaria and observatories) which might perhaps act as resource centres for teachers in various parts of the country. It was by no means exhaustive but at least a beginning.

When approached, the various bodies such as the RAS, BAA, JAS, FAS and BPA expressed an interest in this development and a meeting was held by the DES in co-operation with the RAS at the RAS offices early in 1978 for an exchange of views on the promotion of education in astronomy. This was followed by another meeting early in 1979 held by DES in collaboration with the RAS, chaired in the morning by Dr Derek McNally and in the afternoon by myself. As a result of this it was agreed to set up a Joint Working Party, under the aegis of DES, with the various astronomical bodies and the first meeting was held later that year. Dr McNally became Chairman and I became Secretary. We were fortunate in obtaining the participation of the Schools Council and the Association for Science Education.

Several meetings were held and two specialist groups were set up - one under the Chairmanship of

Dr Roy Booth, to look at the curriculum and the extent to which existing material could fit into any proposed scheme; the other under the Chairmanship of Dr Percy Seymour, to examine the resources network and to report on what was being done.

Both groups worked well, and Dr Booth's group prepared a series of work cards designed for 5 to 13 year olds, for use in the School Council's project on "Learning Through Science". In his interim report Dr Booth encouraged us greatly by stating that "Astronomy as a science will probably be accessible to young people within a year or two", and concluded his report with the words: "The introduction of astronomy into the School Council's 'Learning Through Science' project is assured. It is hoped that the scheme will be generally adopted in the schools". It was also reported that a set of 24 cards would be published under the title of "Looking Up and Looking Down" (a small number of the cards would deal with aspects of geology), and that some fifty schools would use them on a pilot basis for six months.

So progress continued and finally, at the conclusion of a DES course on Astronomy organised by Hatfield Polytechnic in January 1981, a number of proposals were made and it was decided to proceed with the setting up of an Association for Astronomy Education; the inaugural meeting of the AAE was held on 16 May 1981 in Liverpool. We were getting somewhere at last!

Although there is still a great deal to be done, we should be able to make far more progress as an Association than would have been possible with a Working Party. The latter will be wound up at its final meeting in October this year, its valuable task having been accomplished.

It would be invidious to single out individuals for special thanks as it has been a team effort and we have all enjoyed making a contribution, but I would like nevertheless to thank Dr Derek McNally,

Chairman of our Working Party, both for his Chairmanship and his enthusiastic assistance in so many ways, including the all-important provision of facilities for meetings at the RAS. We are very glad indeed that he could join our Council.

May I welcome all those who have already become members, and express the hope that all teachers of astronomy at whatever level, and those who are interested in astronomy education, will join and ensure, as I said earlier, that astronomy resumes its rightful place in the education of all our youngsters - and oldsters! There is plenty to be done. We need the active assistance of everyone.

Donald J Gold,
HM Inspector for Further Education (retired).

* * * * *

A birth announcement for the AAE appeared in the June (1981) Newsletter of Commission 46 - Teaching of Astronomy - of the International Astronomical Union (IAU).

It is hoped that other journals will carry a similar message to let the Astronomical and Educational communities at large know of our efforts.

* * * * *

SOURCES OF BOOKS AND MAPS FROM THE USA

It can be a frustrating experience trying to obtain, for example, National Aeronautics and Space Administration materials in the United Kingdom. One is often told that United States publications are unobtainable. Or, if they are, then the prices are mostly 'way above the USA prices. I know of a famous London bookshop which has been offering NASA books at something like twice their cost over the Atlantic Ocean.

My experience has been that it is far cheaper to order books directly from the United States. The delay due to surface mail transit time is usually no more than the delay that occurs when ordering from a UK bookshop, since bookshops invariably seem to rely on surface mail as well.

The method of ordering normally involves buying an International Money Order from a high street bank (not the Post Office, where the surcharge is very high for these documents). Or, more conveniently, credit card numbers (with expiry dates) can be quoted by letter to some American firms, thus avoiding the money order fee altogether.

The major source of NASA books, booklets, pamphlets and posters is the United States Government Printing Office (1). Write and ask for a free set of lists of astronomy and space publications. It has a special list of educational materials too. Payment can be made by International Money Order or by VISA or Master Charge. Prices are very reasonable indeed (even with the 25% handling charge for orders from the UK). There is a 25% discount on purchases of 100 or more copies of a single publication sent to one address.

Maps of the planets and satellites studied by US spaceprobes are made by the United States Geological Survey and they will provide a list of available items (2). There are charts of the Moon, Mer-

cury, Mars and the Galilean moons of Jupiter available for sale. These come in topographic, shaded relief, photomosaic and geological form and are often works of sheer beauty in themselves. The US Geological Survey also produces some Earth satellite maps. For UK orders there is a postage charge of 25%; with a 30% discount for orders totalling \$300 or more.

The National Geographic Society (3) has for sale a lunar map and one of Mars; write to them for the latest price(s).

Two book firms that I have found most helpful are Willmann-Bell, Inc., (4) and Reading Matters (5). The former is a specialist astronomy book and equipment supplier, and postage charges vary according to the weight of the books ordered. Reading Matters is a general bookdealer and handling charges are \$1.50 for the first book and \$1.00 for each additional book ordered. Both accept Master Charge and VISA methods of payment. Willmann-Bell, Inc., will send lists, and Reading Matters will help with inquiries about specific titles (or general areas of interest).

"Sky and Telescope" magazine is a mine of astronomical information in itself, including the occasional "Laboratory Exercises in Astronomy". The publishers, Sky Publishing Corporation (6), have a book service and issue a free colourful catalogue and free specimen copies of "Sky and Telescope" magazine as well. There are no extra postal costs for foreign orders. The service applies only to books that they have in stock, whereas Willmann-Bell and Reading Matters can obtain any in-print USA astronomy book.

Because of varying postage costs between different firms it is best literally to weigh up the books ordered. Willmann-Bell's lists give approximate weights of astronomical books stocked. It may, for instance, be cheaper to buy a heavy book from Reading Matters than from, say, the US Government Printing Office or from Willmann-Bell, Inc.

The above is not a complete guide to USA sources

of publications for sale, but at least it should serve as a useful guide for getting the best value for your pound (or your dollar).

Geraint Day, Lancaster.

*Editor - "Solar System Today" and Committee Member/
Space Imagery Co-ordinator of the BAA Terrestrial
Planets Section.*

Addresses:

1. Superintendent of Documents
US Government Printing Office
Washington, DC
20402, USA
2. Branch of Distribution / Eastern Region
United States Geological Survey
1200 South Eads Street
Arlington VA, 22202, USA
3. National Geographic Society
PO Box 2806, Washington DC
20013, USA
4. Willmann-Bell, Inc.
126 E Main Street / Box 121
Dundee, Michigan
48131, USA
5. Reading Matters
30 Brattle Street
Cambridge, Massachusetts
02138, USA
6. Sky Publishing Corporation
49 Bay State Road
Cambridge, Massachusetts
02238, USA

AN INVERTED SUNDIAL TO ILLUSTRATE THE PATH OF THE SUN ACROSS THE SKY

The traditional way of illustrating the daily passage of the sun across the sky at different seasons is to use a shadow stick. The movement of the sun can be deduced from the change in length of the shadow cast by a fixed stick onto a horizontal board. Problems arise if the sun is at low altitude (winter) when the end of the shadow falls off the board. With younger children particularly the geometry of the situation is not immediately obvious. A more satisfactory demonstration can be obtained by using a transparent hemisphere such as shops use for protecting goods. A round bottomed chemistry flask may be used as an alternative to the plastic hemisphere. Sufficient liquid might be included so that its level provides an upper empty hemisphere when the neck of the stoppered flask is inverted.

The hemisphere is placed on a level board which has a mark at the centre. A felt tipped pen is moved on the surface of the dome so that the shadow of its tip falls on the central point. A mark is made on the dome. If this is repeated during the day the marks made on the dome lie on a curve which represents the path of the sun across the sky. Paths taken at different times of the year show the seasonal variations. The exercise can be extended to measuring maximum angles of elevation of sun by using an external protractor. Buildings, trees, etc., can also be marked on the dome either by using a simple theodolite and transferring the observations or by arranging to look through the sphere, lining up the central mark with the object concerned.

External protractors can be used to read off positions so that they may be plotted on paper for future reference.

Julian Ravest,
Merseyside County Museums.

INVERTED SUNDIAL

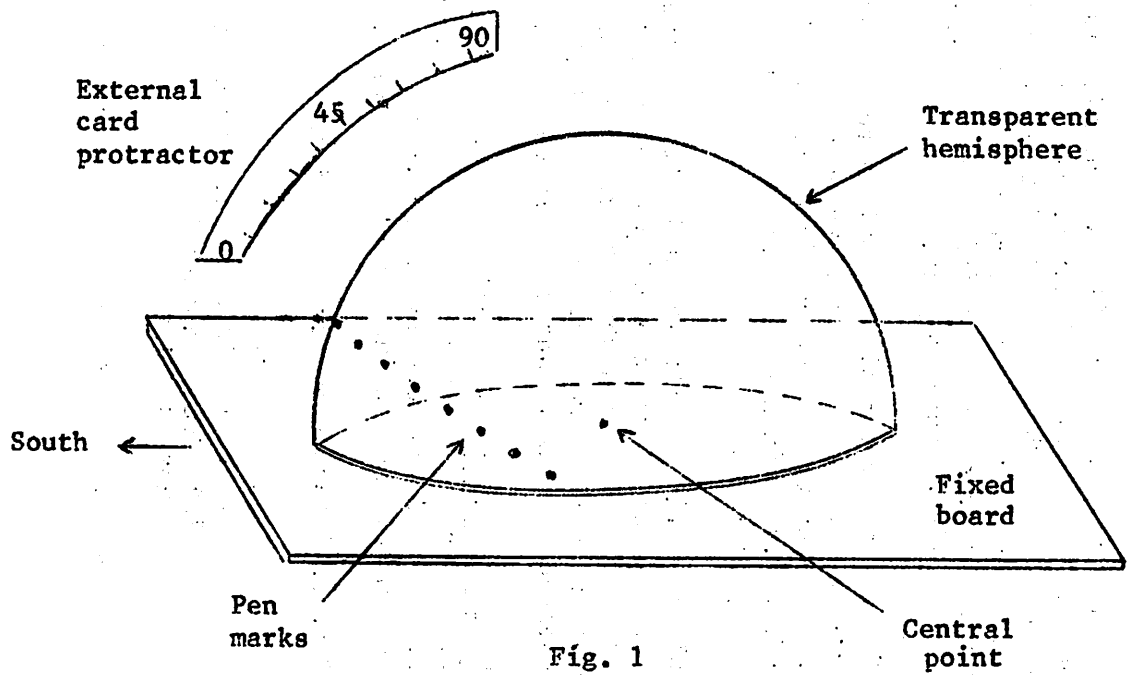


Fig. 1

NEW EDUCATIONAL SUPPLEMENT

On July 1st this year the British Interplanetary Society launched a supplement to its Spaceflight magazine to be known as Space Education.

It is devoted to the rôle of education in Space Exploration and related subject areas, being particularly concerned with the potentialities of Space developments as they offer new career prospects and increasingly influence human affairs and destiny. It is to be published twice a year.

Educational material is provided to assist teachers and advisors of Secondary School age groups. Careers and general background information relevant to students from sixth form to university level is especially included.

Clear, reliable articles on historical events, basic principles, current developments and future projects are given which show the relevance of Space Exploration to many areas of science and technology, to present-day industry and to every-day life.

Space Education is a medium for the dissemination of information and exchange of ideas on the teaching of Space-related subjects and on their relation to the world of employment and industrial activities.

Further information may be obtained from:

SPACE EDUCATION
The British Interplanetary Society
27/29 South Lambeth Road
LONDON SW8 1SZ

* * * * *

* * * * *

NEW TEACHING AIDS

"Make-it-Yourself Astrolabe" and "Make-it-Yourself Nocturnal", each fl.50.

and

The Planispheric Astrolabe @ fl.

All produced by the National Maritime Museum and available from The Bookshop, The National Maritime Museum, Greenwich, London SE10 9NF.

Add 57p postage and packing for each single item or 84p if ordering both kits together.

The Astrolabe is one of the most important and versatile scientific instruments ever invented. It can be employed to solve many different sorts of problems in astronomy, land surveying and even in astrology!

Trying to understand a written description of the operation of an astrolabe, however, can be a dispiriting and frustrating experience. But if at the same time one can actually handle an astrolabe, or a working model of one, then this is greatly simplified.

To meet this need the National Maritime Museum has produced a "Make-it-Yourself Astrolabe Kit" at a most reasonable price. With the aid of this kit, some glue, a paper fastener, a paper clip and a sharp model knife or scissors, one can build a most presentable astrolabe made of card. With a little more care over construction, a sturdier version can be made with the additional help of some balsa wood, a piece of thin plywood and a curtain ring. Along with the kit come clearly written instructions for putting the parts together, and a description of how to set the astrolabe for a given time and date.

A separate NMM publication, The Planispheric Astrolabe, lucidly explains many further uses of the astrolabe, as well as delving into the astrolabe's fascinating history.

The Nocturnal was another highly important astronomical instrument, and it was employed chiefly to find the time at night by the use of the pointers of the Great Bear. Carole Stott of the NMM has devised a card model of a nocturnal and it too is easy to build, easy to use, and it is a pleasure to read the clear explanations.

Both the Astrolabe and Nocturnal kits could be used to great advantage by students taking O-level astronomy to give them insight to the celestial sphere and motions of the stars. In addition, these kits will provide delight to anyone interested in the history of astronomical instruments.

My only complaint of the NMM's enterprise is that there are only two kits marketed, as yet!

Robert Smith, The Planetarium, Merseyside County Museums, Liverpool.

* * * * *

WHAT PRICE KNOWLEDGE ?

Contents of a letter once received by the Editor:

"My teacher says I can do a project on Astronomy. Please send me all you know. I enclose a stamped addressed envelope."

* * * * *

THE FAS HANDBOOK

Societies, whether they be attached to a school, a college, a university, a public observatory or serving as a focal point of interest in Astronomy within a town or community, can offer a wide range of educational stimulus.

The Federation of Astronomical Societies (FAS) publishes a Handbook which, in addition to listing the Astronomical Societies in the United Kingdom, contains much information on the sources for Visual Aids and Addresses of Equipment Suppliers.

The Fifth Edition (1981) of the Handbook has 97 pages and carries additional articles on building a Time Signal Receiver, The Dobsonian Telescope, Useful Notes and Ideas on Introducing Astronomy to Young People, Binoculars and Soviet Orbital Astronomy.

A price of £1.25 is little to pay for the collection of material that this Handbook holds.

Copies can be obtained from:

Mrs Rosemary Naylor
24 Julia Crescent
STONEBROOM
Derbyshire DE5 6LS

* * *

Please send a cheque for £1.25 made out to the Federation of Astronomical Societies, together with two 11½p stamps to cover postage and packing.

* * * * *

USEFUL ADDRESSES

Societies

Royal Astronomical Society (RAS)
Burlington House
Piccadilly
LONDON W1V 0NL
Tel: 01-734 4582

British Astronomical Association (BAA)
Burlington House
Piccadilly
LONDON W1V 0NL
Tel: 01-734 4145

British Interplanetary Society (BIS)
27/29 South Lambeth Road
LONDON SW8 1SZ
Tel: 01-735 3160

Junior Astronomical Society (JAS)
58 Vaughan Gardens
ILFORD
Essex IG1 3PD

Federation of Astronomical Societies
Mrs Rosemary Naylor
(Secretary)
24 Julia Crescent
STONEBROOM
Derbyshire DE5 6LS

* * * * *

A list of the addresses of Astronomical Societies in the United Kingdom appears in 1981 Yearbook of Astronomy (Sidgwick & Jackson, London), edited by Patrick Moore, and also in the FAS Handbook, 1981.

* * * * *

PLANETARIA - offering services and shows for
Schools.

Armagh Planetarium

Armagh
Co Armagh
Northern Ireland
Tel: 0861-523689

Greenwich Planetarium

National Maritime Museum
LONDON SE10 9NF
Tel: 01-858 1167

Jodrell Bank Planetarium

Jodrell Bank
Macclesfield
Cheshire SK11 9DL

Liverpool Planetarium

Merseyside County Museums
William Brown Street
LIVERPOOL L3 8EN
Tel: 051-207 0001

London Planetarium

Marylebone Road
LONDON NW1 5LR
Tel: 01-486 1121

London Schools Planetarium

ILEA Advisory Centre for
Astronomy
The Planetarium
Wandsworth School
Sutherland Grove
LONDON SW18
Tel: 01-788 4253

... continued overleaf ...

PLANETARIA (contd..)

Science Museum Planetarium

Exhibition Road
South Kensington
LONDON SW7
Tel: 01-589 3456

William Day Planetarium

School of Maritime Studies
Plymouth Polytechnic
PLYMOUTH PL4 6AA
Tel: 0752-21312

* * * * *

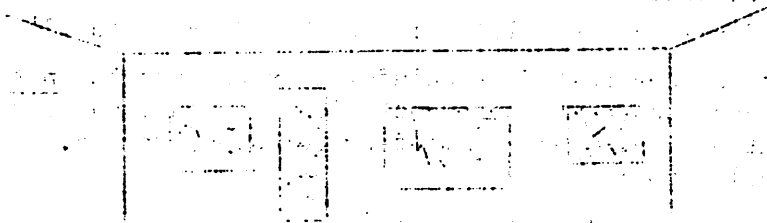
Additions (and amendments) will be published.

Please keep the Editor informed about changes and developments.

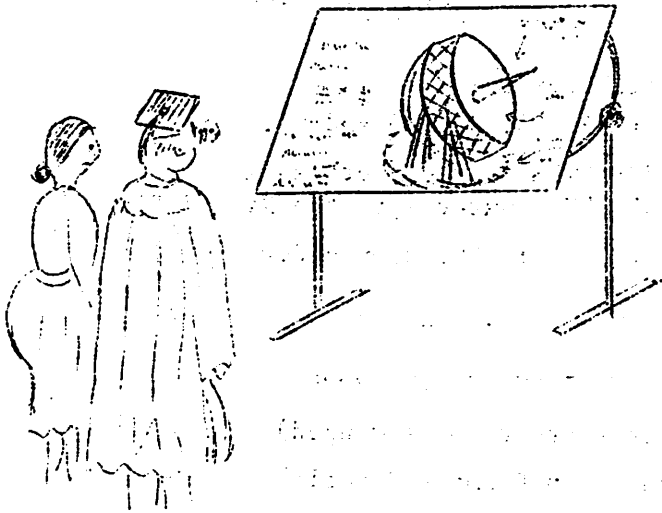
* * * * *

The production of this Newsletter is done at Glasgow University Observatory mainly by the energies of Mrs Margaret I Morris who has now added another multi-skilled undertaking to her already busy life. Mrs Morris has always been interested in Astronomy and is a Part-time Research Assistant at Glasgow.

* * * * *



PRIMARY PROJECT



"Well, I really don't know whether we have funds for this, Miss Smithers. Perhaps if the PTA could be persuaded to run a Coffee Morning ?"

FORTHCOMING EVENTS

GREENWICH PLANETARIUM

Two-day Holiday Courses in Astronomy for Children

Oct 26-27 - Over 12's : Oct 29-30 - 8 to 12's.

Both courses cost £2 (includes refreshments but not lunches) and comprise planetarium sessions, day and night observing and elementary telescope making.

Details from:

Schools Liaison Officer
Education Services Section
National Maritime Museum
LONDON SE10 9NF

Special Public Shows

December 22, 23, 29, 30 and 31.

At 14.30 "The Star of Bethlehem"

At 15.30 "Encounter with the Ringed Planet"

Adults - 30p : Children under 16 - 15p

* * * * *

ONE DAY MEETING IN LIVERPOOL

December (Date to be arranged)

"Astronomy in Primary Schools"

Please contact: Mr J Ravest
Liverpool Planetarium
Merseyside County Museums
William Brown Street
LIVERPOOL L3 8EN
(Tel: 051-207 0001)

* * * * *

Please send notes on future "Forthcoming Events" to the Editor in good time for inclusion in the next issue which will be distributed in January 1982.

CARETAKER COUNCIL

At the Inaugural Meeting of the AAE on 16 May 1981, a Council emerged with the following make-up.

Patron: F Graham Smith, MA, PhD, FRS
(Professor of Radio Astronomy
and Director of the Nuffield
Radio Astronomy Laboratories at
Jodrell Bank)

President: Mr D J Gold
(Ex HMI)

Vice-President: Professor A E Roy
(Glasgow University)

Secretary: Mr J Ravest
(Liverpool Planetarium)

Treasurer: Mr R Butt
(Teacher, Kent)

Newsletter Editor: Dr D Clarke
(Glasgow University)

* * * * *

Mr D Ashton	(Teacher, Sheffield)
Miss H Couper	(Greenwich Planetarium)
Mr D Harris	(Wolverhampton FE)
Mr P Horrocks	(Teacher, Lancashire)
Dr D McNally	(London University)
Mr J C D Marsh	(Hatfield Polytechnic)
Mr T Murtagh	(Armagh Planetarium)
Capt P Richards-Jones	(ILEA Schools Planetarium)
Dr E I Robson	(Preston Polytechnic)
Dr P Seymour	(Plymouth Polytechnic)

Contents

Patron's Message	2
Editorial	3
President's Letter (D J Gold)	5
Sources of Books and Maps from the USA (G Day)	9
An Inverted Sundial (J Ravest)	12
New Educational Supplement	14
New Teaching Aids (R Smith)	15
FSA Handbook	17
Useful Addresses	18
Planetarium Addresses	19
Forthcoming Events	22

Further information about the AAE may be obtained from the Secretary, Mr J Ravest, Liverpool Planetarium, Merseyside County Museums, William Brown Street, Liverpool L3 8EN (Tel: 051-207 0001).

Articles, ideas, views and Letters to Editor for publication may be sent either to the Secretary as above or to: Dr D Clarke, University Observatory, Acre Road/Maryhill Road, Glasgow G20 0TL (Tel: 041-946 5213).

NEXT ISSUE - January 1982