AAE news

PUBLISHED BY THE ASSOCIATION FOR ASTRONOMY EDUCATION

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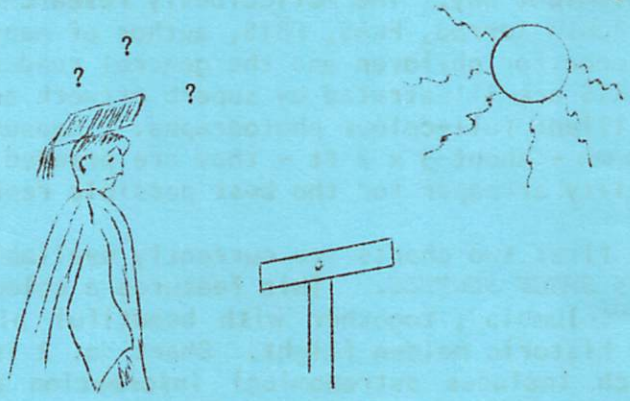


TIMES HAVE CHANGED?

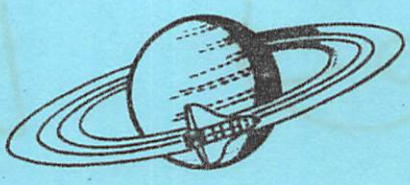
Quote from an article on: Time-keepers and Country Clocks.

"The post must be set in the ground, that the oak board may point (as nearly as possible) north and south; and, as various methods of determining this are so generally known among schoolmasters, who, doubtless, would always be ready to give their assistance on such occasions, we scarcely think a description thereof is here required."

The Christian Almanack for the Year 1838
(Published by The Religious Tract Society - London)

Introducing

Spacecharts



These new charts present up-to-date information on astronomy and astronautics in an attractive and very convenient way. The meticulously researched text is by Robin Kerrod, FRAS, FBIS, author of many books on science for children and the general reader. SPACECHARTS are illustrated by superb artwork and also by brilliant full-colour photographs. Measuring 900 x 600 mm - about 3 x 2 ft - they are printed on finest quality artpaper for the best possible reproduction.

The first two charts are currently available and No. 1 is *SPACE SHUTTLE*. This features a colour cutaway of "Columbia", together with beautiful pictures of its historic maiden flight. Chart No. 2 is *JUPITER*, which includes astronomical information about the planet and its moons for amateur observers, together with data and spectacular photographs obtained by the Pioneer and Voyager probes.

SPACECHARTS are available direct from their publishers and cost only £1.75 each, including V.A.T. To ensure that they reach you in perfect condition, the SPACECHARTS are posted to you rolled inside a strong cardboard tube. Please add postage and packing, 60p per order.

S P A C E C H A R T S

Newton Tony • Salisbury
Wilts • SP4 0HF

EDITORIAL

Already the Newsletter is beginning to look after itself without the Editor worrying about the supply of publishable material.

In this issue we have concentrated on reports of peoples' experiences and on announcements of forthcoming events and courses, appropriate for the start of a New Year. One article carries photographs; to save anyone writing in about spelling mistakes, it is easily seen that artificial craters can be made by dropping "peas" into the right mixture!

A good pictorial wallchart is a standard way of setting the scene for educational projects and several are now available with astronomical or space themes; they can even be used for brightening up the Staff Common Room. Two commercially available packages are briefly reviewed overleaf.

Four pages have been given to the presentation of a proposed syllabus for a "Lower Sixth Form Astronomy Course". Before this is promoted further it would be useful to have your responses - even positive criticism would be welcomed!

We have been greatly encouraged by letters and responses from people who have been active in astronomy education through their own independent efforts, unaware of the various moves which led to the birth of the AAE. The desire to teach astronomy and to use it to teach the principles of the scientific method is even more widespread than we thought.

It will be noted that this Newsletter carries advertisements. Please support those suppliers of materials who have helped us in bearing the costs of our publication.

David Clarke.

Barbara Taylor.

POSTER REVIEWS

"EXPLORING THE PLANETS" (T712) from Pictorial Charts Educational Trust comprises 4 charts each measuring 49.5 cm wide x 37 cm high. Subjects are Mariner 10 to Mercury & Venus, Viking I to Mars, Voyager I to Jupiter and Voyager I to Saturn. The backgrounds are black with "natural" coloured photographs of planets and satellites. Three charts also incorporate a solar system diagram with the spaceprobe's path clearly indicated. The displayed text is brief but there is additionally a booklet of teacher's notes written by the Education Officer at the Science Museum.

The clear lettering and bright appearance should appeal to younger children, and little fingers could profitably trace the paths of the spacecraft. The set costs £2.85 + VAT and is obtainable post free from Pictorial Charts Educational Trust, 27 Kirchen Road, West Ealing, LONDON W13 OUD. Perhaps the chief defect is that the charts are folded for posting which slightly detracts from their appearance as a white crease can show up against the black background.

The other set, published by SPACECHARTS (text by Robin Kerrod) consists at present of two large charts titled "Jupiter" and "Space Shuttle". Backgrounds are white, with a combination of colour photographs, cutaway drawings and other artwork. "Jupiter" conveys a good deal of astronomical information on the planet and combines the spectacular Voyager photographs with a drawing of the Pioneer spaceprobe. "Space Shuttle" has very good diagrams and a series of NASA photographs. These two charts are fine examples of colour printing. The fuller text and smaller type would perhaps not be so appetising for young children although they would enjoy the diagrams and beautiful photographs. However, these charts would prove absorbing for older pupils as well as for adults.

For details of sizes and ordering, please see the advertisement on page 26 of this issue. These charts arrive unblemished in a strong cardboard tube.

MIM

RGO/AAT COLOUR POSTERS

Three very fine colour posters produced by the Royal Greenwich Observatory and the Anglo-Australian Telescope Board are on sale from the Royal Astronomical Society.

The subjects are photographs of:

1. Trifid Nebula (Messier 20) taken with the 3.9 m Anglo-Australian Telescope (20"x30")
2. Orion Nebula (M42) taken with the 2.5 m Isaac Newton Telescope (20"x28")
3. Eta Carinae Nebula taken with the 3.9 m Anglo-Australian Telescope (20"x30")

Sold only in sets of three, these may be obtained by personal callers for £2.60 per set or by post from The Royal Astronomical Society, Burlington House, Piccadilly, London W1V ONL, for £3.00 (or US$6.00).

LUNAR SAMPLE EDUCATIONAL PACKAGES

The Science and Engineering Research Council has been lent by NASA a package of 12 polished thin sections of lunar rocks and soils. An additional 12-sample package and two 6-sample encapsulated packages for schools will also be available soon. Educational institutions in the UK teaching or popularising the sciences may borrow these packages from SERC.

No special equipment is needed to study the schools packages but a standard petrographic microscope, using polarized light, is required for the thin section packages. Certain security procedures would, of course, have to be followed by all borrowers.

Further details are available from Mr Alan Brittain, Solar System Committee Secretariat, Science and Engineering Research Council, Polaris House, North Star Avenue, Swindon SN2 1ET.

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THE NEXT FOUR PAGES ARE FOR YOU TO THINK ABOUT

AND FOR YOU TO MAKE A RESPONSE

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A PROPOSED SYLLABUS FOR A LOWER SIXTH FORM ASTRONOMY COURSE

THE OUTCOME OF SOME OF THE WORK DONE BY A DES/RAS WORKING PARTY

R S Booth, NRAL, Jodrell Bank
A W Lintern-Ball, Loughborough GS
I K M Nicolson, Hatfield Polytechnic.

"THE UNIVERSE: SCIENTIFIC CONCEPTS, HISTORICAL PERSPECTIVES"

This is the syllabus for a proposed A/O course in Astronomy intended for students who have passed O-level science and mathematics but who are not necessarily carrying on to A-level science. In other words it is a cross-discipline course aimed at interesting the arts student in some aspects of scientific thought while giving the science student an insight into the history of science and astronomy.

The main aim of the course is to show how astronomy draws upon all of the sciences and how it feeds back into them through observation and the introduction of new concepts or theories.

The syllabus is aimed at the 1st year in the sixth form and it is assumed that it will occupy 4 periods per week over the full year, i.e. approximately 90 hours.

An Introduction to the scale and content of the universe to set the scene ($\sim$ 1 hour) - could be in the form of a slide show.

CONTENTS OF PROPOSED SYLLABUS

1. GRAVITY - the ruling force (∿ 20 hours)

Motion in the heavens: movement of sun, moon, planets and stars. Early views of force and motion, Aristotle, force necessary for motion. Natural and forced motion. Perfect celestial motion. Geocentric view. Copernican revolution. Kepler's ellipses, Newton. Mechanistic versus action at a distance. Discovery of Neptune. Newton's laws of motion. Introduction of ideas on orbits, tides and space flight (escape velocity and action and reaction). The scale of the solar system. Gravity and the stars, binary systems, "weighing stars". Gravity holding stars together, introduction of ideas on collapse and black holes. Stellar associations, galaxies and quasars. Motion of galaxies, expansion of universe, Big Bang, open/closed universe.

2. RADIATION - source of information (∿ 12 hours)

The nature of light, particles v. waves (Newton, Huygens), experimental evidence, interference, photo-electric effect (Einstein). Planck's quanta, $E = h\nu$. Spectral lines and the Bohr atom. The electron. Emission and absorption spectra. Doppler effect and redshift. Continuous spectrum. Heat, black body radiation, Stefan's law. Wien's law. Colour temperature and luminosity of stars, magnitudes. Spectral classification of stars. H-R diagram. The whole electromagnetic spectrum straddling the visible. Production of radiation throughout the e.m. spectrum, e.g. accelerating electrons and synchrotron radiation. Astronomical sources of radiation throughout spectrum (e.g. radio galaxies and quasars, dust clouds, X-ray sources, etc.) Absorption of radiation and problems of observing (leading to next section).

3. OBSERVING THE UNIVERSE - collection of information (∿ 20 hours)

Notion that this is an observational science, no laboratory measurements possible.

Possible observations - (a) position of celestial objects (from early naked eye observations) (constellations) to modern sophisticated recordings). Movements of objects in sky, proper motion. (b) Brightness and brightness distribution. Mass-luminosity. Variability. (c) Spectrum, chemical composition, radial velocity. (d) Polarization, mechanism of emission.

Collection of data Optical telescopes. Galileo *et al.* Refractor v. reflector. Basic ray diagrams. Problems: chromatic aberration, speculum metal, Catadioptic systems. Development of the giant telescope (Herschel, Rosse, Mt Wilson, Palomar, AAT). Other recent developments. Properties of telescopes, light gathering power, resolution, magnification. Radio telescopes. Interferometer to improve resolution. Space-borne telescopes. X-ray and space telescope.

Detection and recording Photographic plate. Photoelectric devices. Spectrometer. Radio detection (simple diode rectifiers). Proportional counter. The use of computers. Other detection and recording systems: exploration by spacecraft, neutrino astronomy, gravity wave astronomy.

Distance measurement - radar, parallax, cepheids and similar objects, Hubble.

4. STELLAR EVOLUTION - Dissemination of the information (∿ 12 hours)

Basic properties of stars: mass, temperature, luminosity. H-R diagram. Structure of a star. Gas laws, $PV = RT$, general description of equilibrium of a star. Energy flow. Generation of

energy in stars. Sources of energy (comparison of chemical, gravity and nuclear). Evolutionary sequence, Collapse of cloud, KE + PE → heating. Main sequence. Post main sequence, shell burning, red giants. Final stages, white dwarfs, supernovae, pulsars, neutron stars. Black holes.

5. CHEMISTRY - assimilation of other disciplines (∿ 12 hours)

Nucleosynthesis - Big Bang (H → He). Stars - build-up of heavy nuclei. Supernovae.
Stellar spectroscopy: chemical composition and properties of stellar atmospheres, solar atmosphere.
Radio spectroscopy, 21 cm line - structure of galaxy. Molecular clouds. Chemistry of interstellar medium.

Origin and evolution of life.

6. THE SOLAR SYSTEM - Application of ideas in 1 - 5 (∿ 12 hours)

Observation:	Description of observational properties of solar system including recent spacecraft results.
Gravity:	Motion of planets' satellites. Retention of atmospheres.
Radiation:	Heating and illumination of planets by sun. Albedo and greenhouse effect. Effect on atmosphere.
Chemistry:	Comparison of planetary atmospheres. Their origin. Planetary geology. Living organisms on planets.
Stellar Evolution:	The sun as a star. Evolution of a planetary system - comparison of theories. History.

THE ABOVE SYLLABUS IS OPEN FOR DISCUSSION AND COMMENTS. ANY SUGGESTIONS AND CORRESPONDENCE ABOUT IT SHOULD BE SENT TO:

A W Lintern-Ball
Loughborough Grammar School
Loughborough, Leicestershire.

EVENTS AT THE PLANETARIA

THE LATEST PROGRAMME OFFERED BY THE LONDON PLANETARIUM -

"THE EXPLORERS"

This programme links the post-war space race with another great age of discovery - the 14th century maritime exploits of the Spanish and Portuguese.

It follows the development from the deadly V.2 rockets of the 1940's to those which have launched successive generations of spacecraft; the dramatic achievements of the Russians and Americans - Sputnik, Explorer, Luna, Apollo - culminate in the moon landings of 1969 and 1971.

Contrasting with this are the southward journeys of Bartholomew Dias and Magellan. The beautiful Southern skies (not often shown in the planetarium) are explored in detail.

TEACHERS' EVENINGS AT THE LONDON PLANETARIUM

A series of Teachers' Evenings, with light refreshments, will be given between February and April. Programme includes an introduction to the Astronomers' Gallery exhibition, a demonstration in the Planetarium of the various programmes offered, and an optional guided tour of Mme. Tussaud's. Admission free.

Apply to Planetarium Secretary for further details:-

Undine Concannon
Planetarium Secretary
The London Planetarium
Marylebone Road
LONDON NW1 5LR

Tel: 01-486 1121

LONDON SCHOOLS PLANETARIUM AND ADVISORY CENTRE

Teacher courses in school astronomy.

1982

14 Jan	-	Half-day course, No. 2536
21 Jan	-	Full-day course, No. 2537
11 Feb	-	Full-day course, No. 2538
16 Feb	-	Half-day course, No. 2539
16 Mar	-	Half-day course, No. 2540
25 Mar	-	Full-day course, No. 2541

Full-day courses: 9.30 a.m. - 4 p.m.
Half-day courses: 9.30 a.m. - 12.30 p.m.

Further information from:

Capt. P. Richards-Jones
Director, London Schools Planetarium
Wandsworth School
Sutherland Grove
Southfields, LONDON SW18

Tel: 01-788 4253

GREENWICH PLANETARIUM

1982, Saturday, 6 February

All-day annual Talk-in on CAREERS IN ASTRONOMY, designed for young people interested in becoming professional astronomers.

Lectures on the "awful truth" given by well-known professionals - who in the past have included Derek McNally, Jack Meadows and Paul Murdin.

Details from Schools Liaison Officer
Education Services Section
National Maritime Museum
London SE10 9NF

Tel: 01-858 1167

SIXTH FORM SUMMER SCHOOL - Science Course No. 4, 1981

Some five years ago the Inner London Education Authorities Inspectorate decided to run summer schools for sixth formers, directly after they had finished their A levels when they still had time on their hands. The idea of these courses was to give the pupils a chance to look at the outside world, prior to entering an establishment of Higher Education, with the premise that in choosing a particular course they might gain some insight into a profession in which they were - or might become - interested.

Last year, the London Schools Planetarium and Advisory Centre were asked to run a summer school in astronomy (one of 23 science courses), being told to keep it as practical as possible with the aim of having involvement in experimental work. The course was to be steered away from mathematics and abstractions of cosmology.

Pupils short-listed for the course were those of such academic ability as to expect A's and B's in Maths/Physics. As it turned out, 22 young people were due to take part in the course from various schools all over London.

Certainly I said "Terrific!" After putting the telephone down, I wondered what on earth I had let myself in for. How, for instance, do you organise a course lasting seven days on astronomy and keep it as practical as possible with only daylight hours allowed?

Well, thank goodness, we had the planetarium; at least we could do something in the way of positional astronomy and with lots of star maps and projects we could give our pupils an insight into a facet of astronomy with which they had hitherto not been in contact.

The next and perhaps the most important step was to call on friends for help. We had the planetarium, but who had an observatory in striking distance where

students could be given projects to do during daylight hours? Hole in one! Dr Derek McNally was approached and, although it meant an extra demand on his time, he went into action with the enthusiasm of the dedicated educationalist .... and so Mill Hill, the University of London's own observatory, opened their doors to us.

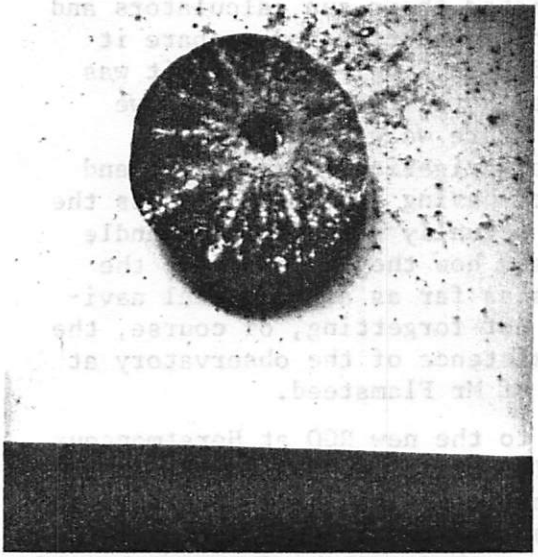
Apart from visiting Mill Hill, it became obvious that we also needed to visit other seats of astronomical work in order to give the participants an all-round appreciation of what actually went on in present day astronomy. Therefore, once more calling on the specialists, we did manage to get a day at the Royal Greenwich Observatory (RGO) and an afternoon in the navigation room of the National Maritime Museum (NMM).

On the day of our visit to the NMM we had in the morning made cut-out models of certain instruments in order to become better acquainted with their construction and use (you know - the sort of thing that you can knock up in fifteen minutes flat!). Unfortunately academic ability and practical skills do not always walk hand in hand, and the sun had gone in by the time they had finished their sun calculators and were ready to check the solar time and compare it with the value "E" and Mean Time. However, it was still fun, and provided a talking point until we arrived at the Museum where we were met by Alan Stimson, keeper of the navigation instruments, and given the rare treat of having an expert discuss the instruments whilst we actually were able to handle them. Thus we could see how they fitted into the whole scheme of things as far as astronomical navigation is concerned - not forgetting, of course, the reason for the very existence of the observatory at Greenwich in the time of Mr Flamsteed.

Our other visit, to the new RGO at Herstmonceux, was *par excellence*. The visit to "behind the scenes" at the Royal Observatory could not have been bettered and Malcolm Currie (who was responsible for organising the day) must have worked very hard on our behalf.

ABOVE

The intricacy of that long sixth pip explained at last.

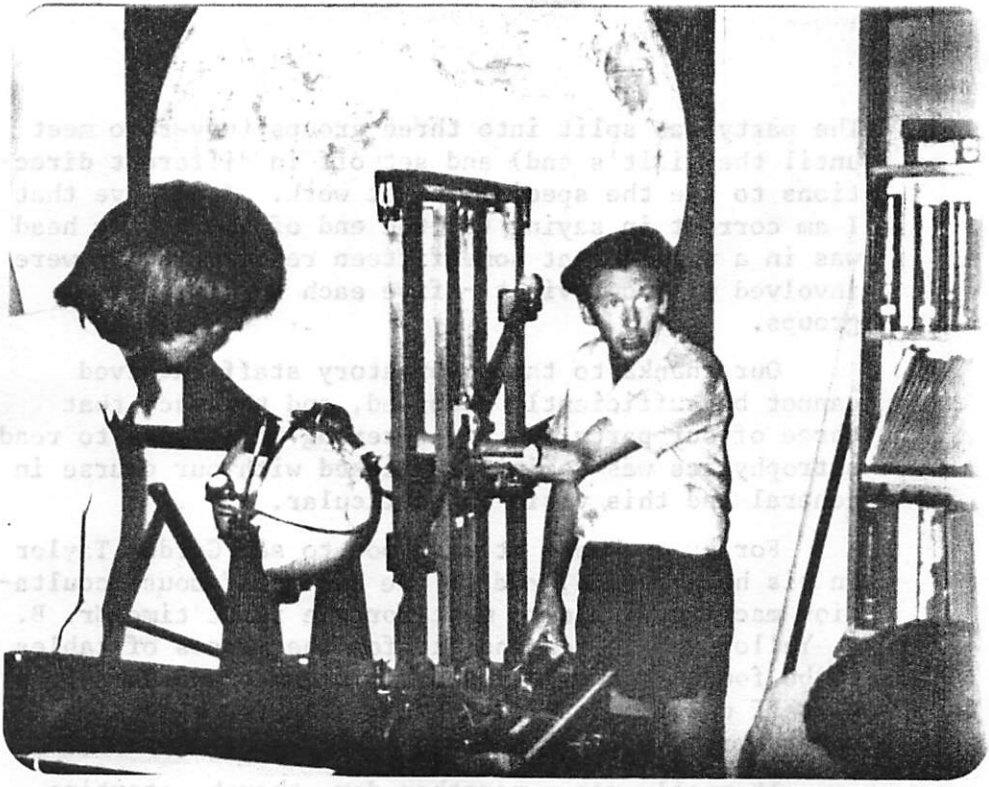


LEFT.

Student experiment of craterlet scatter density from parent impact crate shows similar distribution to real lunar craters

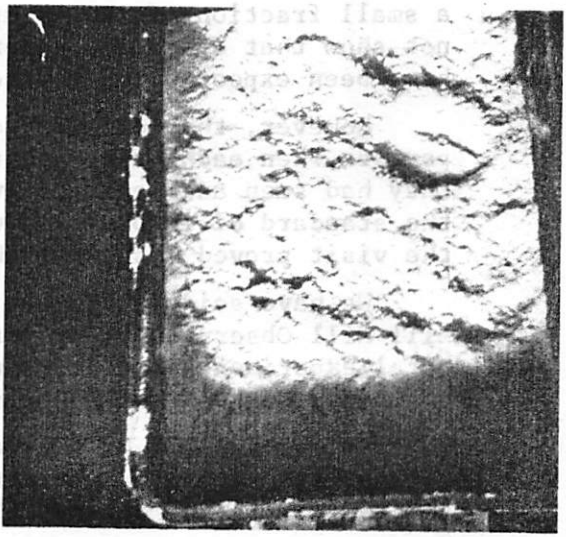
ASTRO

SCIENCE COU



ABOVE

Students introduced to research machine used for occultations of minor planets. At the RGO Herstmonceux



RIGHT

Similar density impact materials produce sudo lunar landscape. In this case the cross ridged crater top right is identical to a lunar photograph.

The party was split into three groups (never to meet until the visit's end) and set off in different directions to see the specialists at work. I believe that I am correct in saying (at the end of the day my head was in a whirl) that some fifteen research units were involved with our visit - five each for the three groups.

Our thanks to the Observatory staff involved cannot be sufficiently recorded, and the fact that three of our party are now entering university to read astrophysics was definitely linked with our course in general and this visit in particular.

For my own part it was good to see Gordon Taylor on his home ground, and to see his now-famous occultation machine. Also to meet for the first time Mr. B. D. Yallop who is responsible for the masses of tables to be found in the Astronomical Almanac and who has himself compiled tables and formulae for computing astronomical data with a hand calculator.

It really was a marathon day, though, starting with a 2½ hour coach trip and a 5.30 a.m. start for some of those who lived a long distance from the coach pick-up point at 8.30 a.m. It was not surprising that a small fraction of the group were zombie-like and did not show that clear and eager brightness which might have been expected under other circumstances.

However, the following day during the seminar periods when each group had to give an account of what they had seen and been involved with the previous day, the standard of information was gratifyingly high, so the visit proved most worthwhile.

We have said little yet of the visit and work at Mill Hill Observatory, or for that matter of the practical experiments and talks presented by learned visiting lecturers at the planetarium.

As far as Mill Hill is concerned the day was thoroughly enjoyable. We attempted to achieve two ambitions: (1) to observe the Sun's spectrum using

the observatory's heliostat and (2) to have the pupils participate in some astronomical exercises which are prepared by the observatory for their own first year students on degree courses. Although it rained for 7/10 of the time and cloud coverage was 8/10 for the day, I am pleased to say that we were happily successful on both counts, and all the projects and experiments offered were thought by our pupils to be *"Very good"*, *"Sensible"*, etc. (their own words) and were attacked with gusto - and a great deal was learned.

Other experiments and projects were carried out during the course at the planetarium - some continuous such as sunspot observation in order to demonstrate solar rotation, also investigation of graphs of sunspot activity; "Make your own Lunar Crater", photograph it and compare it with real photographs of typical lunar landscapes. This latter experiment was very successful insofar as the pupils tried many different ways to obtain something that looked like a crater, and then checked a craterlet scatter count (see the photographs on centre pages).

They all liked the game of check the constellation and how to fill in the HR diagram, using for both a PET micro-computer kindly loaned by PETALECT and to whom we are grateful. The tape was programmed and given to us by our editor, David Clarke. Thanks again, David. It's a good teaching aid. It was favourably received, especially as the computer was not coin operated.

A summary of the educational value of the summer school is now due, and to help us assess this we gave out questionnaires to the pupils. We did of course get some fair old criticism on certain aspects of the course, in particular the fast pace throughout leaving them no time to think (or sleep) but on the credit side we got: *"The visit to the RGO was particularly stimulating, as it showed us what professional astronomers do and how many mysteries and problems there are for people to solve."* Again,

"The lectures were excellent and most interesting. They were at the level for sixth formers but not too complicated for those of us who knew nothing of astronomy at the beginning." Also, *"The seminars: Some were stimulating, others were soporific and I do not think we asked enough penetrating questions."*

One doesn't know how to respond to the last statement except to say that this ability might come by exposing pupils to more situations of the kind offered by the Summer School, but at least it does show that the course was thought-provoking and in some cases stimulated the desire to learn more about astronomy.

Apart from the three students who are to read astrophysics and thus hopefully enter the profession, the directions the others will take were unknown. No doubt one or two will enter teaching and in this case some seeds have been sown, making our efforts worthwhile.

Capt. Peter Richards-Jones
Director, London Schools Planetarium

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ADDITION TO LIST OF PLANETARIA

Please add the following to the list of Planetaria given on page 19 of AAEnews Vol. 1 No. 1:-

South Shields Marine & Technical College Planetarium

St Georges Avenue
South Shields
Tyne and Wear
NE34 6ET
Tel: (0632) 560403

This planetarium, which is part of the Department of Nautical Science in the above-mentioned College, offers services and shows for schools, colleges, youth associations and the general public.

NEWS FROM THE BBC

Sarah McNeill
Producer, Springboard

"Space" has long been a topic favourite in primary schools, and last term (Autumn 1981) Springboard - the schools radio miscellany series for 7-9 year olds - broadcast five programmes to support teachers' work in this area. The programmes, drawing as much on science fact as from science fiction, were offered at the time of the Columbia Space Shuttle events. Springboard, which is broadcast on Wednesday mornings at 11.20 am (R4 VHF) is used by about three thousand primary schools in England, Wales and Northern Ireland.

The five programmes covered the following subject areas:-

The Astronomers - what is an astronomer? What is astronomy?
A Star Story - legends of the constellations.
The Planets - our Solar System and recent space probes, presented by Tom Baker.
Pole Star - an historical dramatisation of a Phoenician voyage to the British mainland.
I Saw a Star - music and poetry about those who saw and followed the Star of Bethlehem.

It is not always possible for me as producer of the series to get in to schools when programmes are being used, but I did take a copy-tape of The Astronomers into Booker Avenue School in Liverpool during a visit to that city last term. I played the recording to a group of youngsters drawn from three different classes.

They sat on chairs or on the carpet in the library, and after talking about space travel and what they knew of this by way of introduction, I started the tape. A child's concentration tends to rise and

fall during the course of a twenty minute programme and I try to structure programmes to match this peaking and troughing pattern. However, this group listened attentively throughout, one child actually creeping from his chair and up to the table where the tape recorder was placed. He listened with his chin resting on the table top.

The programme described the arrival in our Solar System of the spaceship Star School. Two space pupils are being given lessons in history, astronomy and truth. Space-master Zoom puts the ship in orbit around planet Earth where, he says, he always brings his pupils to study history, astronomy and truth. The two pupils "beam down" to Earth where, unobserved, they are able to watch the work of Copernicus, Kepler, Tycho and Galileo. They take too long over their studies and have to beam back up before their work is done. Space Master Zoom chides them for not having found out about the work of the twentieth century astronomers and their radio telescopes. (There's a limit to what can be done in twenty minutes, even with dramatic conventions such as time-warps and astral projection!)

But the programme aimed primarily to introduce a vocabulary that would be used again in the four following broadcasts.

The class reaction to this programme took me by surprise. I had expected fairly simple questions to follow - did Tycho really have a gold nose? Why are planets and our galaxy named after sweets (Mars, Milky Way, etc.)? How did Galileo invent a telescope? Instead this group wanted to know what was there above Earth's atmosphere? Why did the night appear to be black? How is it we don't tip off as the Earth turns? And do we really move around the sun? One could almost hear mental cogwheels clicking as their minds reached out for more. I could only urge a visit to the Planetarium - a follow-up session that was already being planned by their teachers.

The level of interest and receptivity among youngsters is almost tangible. The main task is providing teachers with support, reinforcement, resources and materials. I would certainly be interested to hear from any teachers who are interested in using school radio broadcasts in this way.

Mrs Sarah McNeill
Producer, Springboard
Schools Radio, BBC
Broadcasting House
LONDON W1A 1AA

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FORTHCOMING COURSES AND EVENTS

ONE DAY MEETING IN LIVERPOOL

April (date to be arranged) 1982

"Astronomy in Secondary Schools"

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

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

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1982 February 24

Institute of Physics Education Group (Birmingham Group) at Birmingham Science Teachers Centre.

Commencing 1700 hrs.

"ASTRONOMY AND SCHOOL PHYSICS"

Chairman, Dr Ron Maddison, Keele University.

Speakers: Dr D McNally, University of London Observatory, Mill Hill
Mr D J Harris, Bilston College of F.E., Wolverhampton.

Topics: School Astronomy, careers, computers in Astronomy
Public examinations in Astronomy, current situation and resources.

Contact: Eric Deeson, Highgate School, Birmingham B12 9DS
(or at home - Tel: 021-426 3835)

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1982 March 19-21 (Friday evening - Sunday tea)

Residential weekend on Astronomy.

Organised by Wolverhampton Astronomical Society at Alston Hall, Longridge, Nr Preston.

Enquiries to Mr M Astley, 8 Holm Mill, Fordhouses, Wolverhampton.
Tel: (0902) 783212

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ASTRONOMY IN THE SECONDARY SCHOOL

1982	March 5th	3 - 9 pm	}	Fee £15
	March 6th	9 am - 3 pm		

University of Bristol School of Education.

A weekend conference has been arranged, to provide an opportunity for interested secondary school teachers to consider Astronomy for 11-18 year olds.

The conference has been arranged to coincide with a meeting of the Bristol Astronomical Society, a large and active group of amateurs with a keen interest in education, and will include the following sessions:

STARTING ASTRONOMY IN SCHOOL • O-LEVEL ASTRONOMY • MUSEUMS AND PLANETARIA AS RESOURCES AND TEACHING AIDS • ASTRONOMY FOR THE INTERESTED ADULT

It is hoped that a visit to local observatories will be included during the weekend. The conference will take place in the Department of Physics on the Friday afternoon and the School of Education on the Saturday morning.

The course tutor will be Dr R Moses, lecturer in the departments of Extra-Mural Studies and Aeronautical Engineering, University of Bristol.

For further details, please contact:

Lyn Williams
FPS Unit, School of Education
University of Bristol
35 Berkeley Square
Bristol BS8 1JA

Tel: (0272) 24161, Ext 700

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"LABORATORIES IN THE SKY"

Weekend School, 1982, May 1 and 2.

Dartington Hall, Totnes, Devon.

This Weekend School is being organised by the Devon Astronomical Association and the Association of Astronomy Education.

The General aim of the School will be to broaden the appreciation of participants of the relationship between astronomy and physics while at the same time discussing some aspects of the teaching of astronomy in schools and projects on astrophysics that could be carried out by amateurs.

The following speakers have already agreed to participate:

Professor V Barocas - Astrophysics in Secondary Schools
Professor A Boksenberg - Modern Observational Techniques
Commander H Hatfield - Amateurs and Astrophysics
Dr M Hoskin - Sidereal Astronomy
Professor J Meadows - The Beginnings of Astrophysics
Capt P Richards-Jones - Astronomy in Primary Schools

Anyone interested in astronomy in education is very welcome.

For further details, please contact:

Mrs I Allison, Principal
Adult Education Centre
Shinners Bridge
Dartington
Totnes, Devon

Tel: (0803) 862271

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

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Dr D Clarke
University Observatory
Acre Road/Maryhill Road
GLASGOW G20 0TL
Tel: 041-946 5213

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