# SOURCES

## An Educational Bulletin

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# CHAOS THEORY

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This article is concerned with a rather fundamental question, namely, *can we predict the future*? In general it is easy enough to predict what will happen one second into the future, harder but not impossible to predict what will happen an hour into the future, but more or less impossible to predict what will happen a year into the future. Perhaps this question is too hard to answer. Let's replace it with a `simpler' but closely related question *does nature obey rules, and is it in any sense predictable?* This question is clearly related to the first and is, in a sense, the motivation behind all of science, which can loosely be described as the search for pattern in the universe. So, does nature have any pattern and order beneath it? Despite the evidence of children (I have two!) the answer is essentially *yes*. We will now have a look at the reasons for believing this, before we tackle the thorny issue of predicting the future.

## A bit of history

In a sense we can say that modern science started because of a boring sermon. Around 1600, Galileo was attending mass at the cathedral in Pisa when he became bored with the sermon. Doing what any self-respecting scientist would do in the circumstances, Galileo watched the cathedral's candelabra (a form of pendulum) swing to and fro. Timing the swing with his pulse he discovered that it had a very predictable and regular motion: its swing always took the same time and two pendulums of the same length had the same period. Really this is remarkable, if you think of the number of things that might effect the swing of the pendulum including the motion of the air, irregularities in its the shape and differences in the strength of the push that you give it to start it off. Yet these really do seem to have very little effect on the period of the pendulum: the motion is repeatable, predictable and understandable, hence its effectiveness in telling the time in a grandfather clock.

Several years later, and in part motivated by Galileo's discoveries, Sir Isaac Newton described for the first time the fundamental laws of motion of the universe. Before Newton the world was seen as an unpredictable place in which events seemed to happen at more or less at random. After Newton, it suddenly became apparent that some at least of the phenomena of the world could not only be explained, but also its future motions predicted.

Crucial to this was the understanding that predictions could be made by using mathematics. This achievement cannot be over-emphasised. Mathematics is an abstract creation of the human mind which appears to have little if anything to do with reality. People often complain ``what is the possible use of mathematics?" Since Newton, this question can be swiftly answered: the whole physical universe works along mathematical lines. For example the pendulum can be described by a `simple' mathematical equation which can be solved on a computer.

An early success in using Newton's laws to make predictions came with the discovery, using mathematics, of the planet Neptune. More triumphs of mathematical prediction came in the 19th and 20th centuries. James Clerk Maxwell predicted the existence of radio waves through purely mathematical reasoning. Just think of the effect of this discovery on the human race. Albert Einstein discovered the theory of relativity, which plugged some gaps in Newton's theories and allowed mathematicians to learn about the creation of the universe in the big bang and to discover such exotic creatures as black holes and wormholes.

All this made some scientists rather over confident in their powers of prediction, indeed in the 19th Century the great French mathematician Laplace said that *if we were to know with precision the positions and speeds of all the particles in the universe then we could predict the future with certainty*.

## Is nature really so predictable?

This state of affairs is all very well for planets, but does it really agree with the state of nature that we observe. In short it does not seem to. Many natural phenomena seem to be very unpredictable, for example the weather (especially when camping with children) and the long-term effects of climate change. Closer to home, the idea of scientific predictability fits uncomfortably with human behaviour and the notion of free will.

So we are faced with the dilemma of either thinking that the laws of nature don't apply to things like the weather, or realising that Newton's concept of predictability (through mathematics) needs rethinking.

Two big scientific discoveries have indeed challenged the notion of predictability. The first is *quantum theory* which gives a fantastic explanation of behaviour on the atomic scale based, almost paradoxically on a fundamental uncertainty of the precise behaviour of sub-atomic particles. It is possible (though I make no great claims here) that this level of uncertainty is linked to consciousness and free will.

However, quantum uncertainty tends to disappear at larger scales and to understand the erratic behaviour of the weather we need to use *chaos theory*. It is claimed by some (usually those who don't understand it well) that chaos theory helps us to understand all of the unpredictable things that we see all around us, like the stock market. Is it really possible that science has advanced this far? Well, to be honest, no, not really. However, chaos theory really does give us a way of understanding many complex and unpredictable natural phenomena. Such understanding has many important applications. It also seems to touch a deep chord in the human psyche. We like things to appear random; unpredictable and erratic behaviour is often

much more fun than boring, predictable behaviour.

## A physical example of chaos

To appreciate what chaos is all about we return to Galileo's pendulum and simply add another pendulum beneath it, making a *double pendulum*. To picture this, imagine the first pendulum as the top half of your leg; now add another pendulum jointed to the first in exactly the same way as your lower leg joints to your upper leg at your knee. It helps if the top pendulum is about twice the weight of the bottom one and the knee joint is really smooth. If you set this up and start it swinging, something very remarkable happens. For small swings the double pendulum behaves very regularly, but for larger swings its behaviour is completely irregular. The double pendulum captivates any audience with its unpredictability. It toys with the them, asking `what will I do next', and always deceiving.

This is the true essence of chaos. A simple mechanical system which we feel we should understand, yet which outsmarts us. The crazy thing about this is that we really DO understand the double pendulum. We can write down mathematical equations for it based on Newton's laws of motion and these equations can be solved on a computer to say what the motion of the pendulum should be. However, the computer itself predicts that the pendulum should move in an essentially random and unpredictable fashion. Even though we can "compute" the motion of the pendulum, we still cannot "predict" what the pendulum should do even a relatively short time after we release it. Now, very small disturbances to the way we start the pendulum or the effect of the slightest air current, rapidly get amplified and make huge differences to the final motion.

All chaotic systems share these two features of being fundamentally simple (in that they are described by straightforward mathematical equations) and yet being unpredictable and unrepeatable, with the smallest changes having enormous effects later on. This is often called the "Butterfly effect". Lorenz, one of the chaos pioneers in the 1960s, captured the essence of this concept by remarking that the flap of a butterfly's wings in Borneo could lead to a hurricane in Florida.

## Chaos in the city

Now, imagine that you are a town planner and you need to predict the population of your town ten years into the future (so that you can build enough houses and schools). If we know the population $x$ this year we might think that there might be some rule $f(x)$ so that next year's population is given by $f(x)$. A very popular such rule is $f(x) = a\ x\ (M - x)$ where $M$ *is* the maximum possible town population, and $a$ is a measure of how many people are born and die in one year.

Rules like this occur everywhere in science - and many other aspects of life. For example, a relationship between the numbers of people suffering from a disease every year or the way that tomorrow's weather depends on what has happened today, possibly obey similar sorts of rules. Going back to our town, we can now ask how the population will change from one year to the next. To find this out, we apply the rule over and over again, so that if $x_n$ is the population in the year $n$ then the population $x_{n+1}$ in the year $n+1$ is given by $x_{n+1} = f(x_n)$. If we knew a start population $x_1$, then it is easy to use a computer to find the future population values $x_2, x_3, \ldots\ldots x_{10}$. However, if you do this something remarkable happens, for small values of $a$ the town population is very predictable, however for larger values, the populations get ever more complex, and (if we take $M = 1$) then as $a$ approaches 4, they are chaotic, with very small changes to $x_1$ greatly affecting the value of $x_{10}$. Our poor town planner is now in a fix, as they can no longer predict the

town's population ten years into the future.

## What does this all mean?

Chaotic motion really does exist both in nature and in mathematics. Why should this concern us?

Firstly, as town planner and pendulum show, seemingly complicated behaviour may have underlying it some simple explanation. This discovery tempts us to think that we may be able to understand other complicated things (such as the stock market) in terms of simple rules. Sadly, this is not always the case. Many things are complicated because they are governed by the interactions of many hard-to-control events, like clouds, people and (probably) the stock market. Chaos won't help too much here, although it has proved useful in understanding some irregular events like disease epidemics.

Secondly, chaos is important because it shows a limit to how well we can predict, and control, the physical world. This is quite worrying when you think how much of the modern world relies on our making predictions from scientific formulae. Every time I drive my car over a bridge I rely on the predictable physical laws. Fortunately, not all physical systems are chaotic.

However, there are two chaotic systems which affect us greatly. The first is the weather. Although weather equations are pretty well understood and are solved by computers every day, it is impossible to take into account all the factors influencing the weather (remember the butterfly). No set of data is perfect, nor are computers perfect at solving the equations. The effects of these small errors build up remarkably quickly. After about 10 days it is essentially impossible to forecast weather with any degree of accuracy.

Chaos is also key to understanding the solar system. Whilst the motion of the planets is very predictable, the motion of many of the asteroids is not. Although asteroids do obey Newton's laws, they may well have orbits which move erratically about space. Such an erratic asteroid is thought to have hit the Earth 65 million years ago and wiped out the dinosaurs. The consequences of a similar incident occurring today are unthinkable; the nature of chaotic motion means that such events are virtually impossible to predict until too late.

## So...what's the use of chaos?

Chaos raises many interesting philosophical issues and can lead to many fruitful mathematical investigations. But is it of any use? Well, yes. The heart is thought to behave chaotically when it goes into fibrillation after a heart attack. Intense study is going on to see whether chaos theory can help predict this and to design pacemakers to restore a fibrillating heart to its normal regularity. Car brakes squealing occur in a chaotic pattern: in this case, randomness is less destructive than regular mechanical wearing. Some modern encryption systems use chaotic signals. Fractals (closely related to chaotic maps) are very important in computer graphics. Lasers, power systems, fluid motions, disease epidemics, car suspensions, capsizing ships and particle accelerators, all depend on chaos. However, to answer our first question, chaos cannot be used to predict the future. As far as I know nothing can do that!

# Chris Budd

[Professor Budd, one of the lecturers at the April event "U3A Explores Science" at the Royal Institute (attended by almost 400 members), is the author of an interesting book on mathematics entitled Mathematics Galore. This is published by Oxford University Press in hardback at £35.00 ISBN 0 19 850769 0 and in paperback at £14.95 ISBN 0 19 850770 4]

"Did you realise that SOURCES is an anagram of SUCROSE?"

"No, I didn't. How sweet!"

# ASTRONOMY IN TYNEDALE

Our Astronomy Group was started six or seven years ago. The aim was to develop our knowledge and understanding of the subject and emphasis was to be placed on observation and practical work. Since then, a broad range of topics has been covered during our monthly evening meetings. Subjects have included the Solar System, Early Models of the Cosmos, the Work of Galileo and Kepler, the Celestial Sphere, Time, Sundials, Identifying the Constellations, Stellar Evolution, the Sun, the Moon, Galaxies, Telescopes, the Behaviour of Light, Aurorae, and Sunspots.

These evening talks and discussions have been supplemented by a visit to a local planetarium, two visits to a nearby observatory and enjoyment of public lectures on Cosmology arranged by a local University. We have also made use of videos.

Our Group Convenor has had a long-time interest in fabricating telescopes using 'low-tech' methods, which means that several altazimuth-mounted instruments are available for use. The latest (and largest) is a 24cm f/6.5 Newtonian reflector. This was in use last November when we gathered to watch an occultation of Saturn and it provided us with the means of taking several photographs of the event. These were later put on display at our own U3A AGM.

Other projects have included observing the 1999 solar eclipse (only partial from our site), observing and photographing the Hale-Bopp comet, making a grating spectroscope to display the absorption lines in the solar spectrum, using a telescope and an adapted camera to photograph the lunar surface and using a simple hand-driven camera mount to obtain pictures of star fields.

Our group is small, but interest has been maintained. The major difficulty with regular observing is our unpredictable weather and sessions are often arranged at very short notice or, quite frequently, cancelled. Another problem is light pollution, which is becoming an increasing nuisance. Apparently, there are now only three counties in England where sites suitable for deep-sky viewing can still be found. So we are faced with challenges, but it's still great fun!

**G M Rowe, Convenor, Tynedale U3A**

# ASTRONOMY IN BRECON

Under the auspices of our Science Group we have been studying the Stars, the Universe and Everything, with the invaluable help of the Science Department at the University of Glamorgan. This introductory module gives us an awareness of the cultural and historical impact of Astronomy on the world, up to date information on current research as well as some of the background science. This University, sited in Pontypridd in the South Wales valleys, is keen to take learning outside its campus into the community and is very willing to help all the U3As in the area. In fact, it is co-operating in the establishment of a new U3A in Merthyr Tydfil at this moment.

As an exciting sideline, we were invited to go to the University campus to meet two Russian cosmonauts and an American astronaut, which proved to be a fascinating experience.

**Lorna Bolingbroke**

Convenor Science Group, Brecon U3A

# ASTRONOMY IN NORTHALLERTON

For some years we have had a group studying astronomy. One of our members, John Morley, is an amateur astronomer who has a fine telescope in his garden. During the winter months we meet at his house and he leads us in studying various aspects of the moon and some of the planets – depending on their visibility. He has also guided us in studying various star formations, such as the Orion nebula, Andromeda. When conditions outside are poor we watch videos, study astronomical charts and discuss various aspects of astronomy. We all now have a much clearer idea of what we are seeing when we look at the sky.

John also runs a well-attended fortnightly course in aspects of Science. We have studied aspects of light, electricity and magnetism. At the moment we are trying to understand atomic physics, what makes up an atom, what electrons, protons, neutrons and quarks are, and the interdependence of all matter. The course members comprise not only those who have a scientific background, but also those who have not considered science since leaving school.

It is most encouraging to find ourselves beginning to understand matters that have been largely a mystery for so many years.

**Ken Daynes**

# ASTRONOMY IN A LONDON SUBURB

Outside of medicine, astronomy must be the most widely publicised science today. The amount of information is breathtaking – via the Web, TV, a plethora of books and frequent newspaper and magazine articles. But what exactly is astronomy? Is it going out and looking at the night sky, or following the latest news about space probes and discoveries of new planets and stars or understanding the physics involved in the life cycles of stars, galaxies and black holes or debating the issues raised by cosmologists about the origins and future of the whole universe?

I believe that all these things make up this marvellous and exciting subject we call astronomy. As co-leader of the Harrow U3A Astronomy group, my job is to relate all this information to the level of knowledge which our members possess. Most are beginners, as we have been going for less than two years, but some have scientific backgrounds and one is a teacher of astrology!

We hold a monthly meeting which is centered on one major topic, usually illustrated by a video extract. In this way we have covered topics such as: The Moon, the Big Bang, the life cycle of stars, the possibility of extraterrestrial life, the problems of space travel and probes to Mars. But we also include a number of shorter presentations by members themselves. We encourage our members to research subjects which they can talk to the class about because involvement and discussion is essential. The most enjoyable discussions are those which get right away from the subject which usually happens when studying the deeper questions raised by cosmology.

I circulate to members a summary of news items which I have taken from the Web during the previous month and these provide material for discussion. The websites I use primarily for news are:

www.universetoday.com and

www.spaceflightnow.com

Both of these sites offer weekly e-mail newsletters. www.skyandtelescope.com also provides good information with an outline of what to see each week. Of course, the NASA site [www.nasa.gov] is indispensable for general information and stunning Hubble space telescope photographs.

Astronomy is primarily about observation of the night sky but this is easier said than done in a light-polluted London suburb. It does need a good degree of enthusiasm to go out on a cold night and spend an hour or more looking at a sky where so little can be seen with the naked eye. I therefore always recommend that budding astronomers acquire a good pair of binoculars. These have many advantages over telescopes: lower cost; a wide field of view to capture the outline of the constellations and the Milky Way; no delays in setting up so that maximum advantage is taken of any short-lived break in the clouds; portability; use of both eyes and objects not reversed as they are in telescopes. The minimum size of binoculars I would recommend is 10'x50' with larger ones being preferable (say 15'x70') but these do need the use of a tripod or even a home-made support. I certainly use my 15'x80' binoculars as much as my ETX 125mm telescope for

regular viewing.

This year I'm hoping that our group may organize a star party or trip to an observatory but we are still a small group of less than twenty members. Meanwhile there are plenty of Astronomy lectures and events in the capital which they can attend. There is also the active West of London Astronomical Society which meets locally. However, I believe that our particular group does meet a need – both for the beginner and for those who enjoy discussions in the informal atmosphere of the member's home where we meet.

**David Bennington, Harrow U3A**

## In the next issue

The next issue of SOURCES will be mailed to those on the database in March 2003 and will have **Practical Activity** as its focus. Contributions will be welcome from U3A groups whose learning activities involve a measure of 'hands-on' (e.g. crafts, gardening, model-making, but not including computing). Please submit contributions to SOURCES at the National Office not later than 8th January 2003.

Despite the fact that SOURCES is always declared as having an overarching theme for any given issue, prospective contributors should not feel discouraged from sending in their offerings. The Editorial Board will always welcome articles of interest that will serve to vary the diet on offer and make each issue a little more wide-ranging than the thematic approach might imply.

U3A members may receive SOURCES at home, free of charge, by sending their full name and address (in capitals) with postcode, plus the name of their U3A, to the National Office.

For technical reasons, the Editor will be more than grateful for contributions that take the form (in order of preference) of (a) a file on a floppy disk (b) an email (mikandel@tesco.net) or (c) clean typescript suitable for scanning – but please do not feel bashful about submitting other forms of contribution. It may not always prove possible to send out an acknowledgment, though every effort will be made to do so. Contributions are considered for inclusion by an Editorial Panel (including the Editor!).

# WEATHER STUDY

We all talk about the weather and express surprise at its rapid variability and extremes, egged on by journalists who think that hailstones must be a winter phenomenon. People claim to be mystified, yet they know that it is colder on mountain tops, understand why hot air rises and mist forms, also why they get pushed sideways as they move in or out on a rotating carousel.

Talks at the level of general interest, plus discussion periods when people are encouraged to ask simple questions, can do much to raise the level of awareness. You can get them watching the sky, to pick out the

streaks of cloud that herald a change, then to recognise the layers of cloud that bring drizzle or the heap clouds that produce showers of rain.

To lead talks and discussions of this kind does not require a degree in meteorology, just an abiding interest and curiosity. Out-door pursuits that depend upon the weather will promote enough study to provide an adequate basis for leadership of a U3A group. Climbers, cavers, sailors and fliers will know how to spot bad weather, while glider pilots will be ideal. Their ability to remain airborne by finding sources of rising air is fully dependent on the weather situation and they know where to get detailed synoptic charts and how to read them. Such knowledge and enthusiasm will be more useful to us than academic attainment.

What we do need from professional meteorologists is confirmation that our simple explanations are soundly based and never misleading. An authorised set of lecture notes would be valuable, thus the existing set held by the Resource Centre could perhaps be vetted and improved. Who will do this? How can we resist well-meaning over-complication? The list of recommended books is useful, ones with helpful diagrams and pictures of clouds, while videos must be carefully selected. Private study should be encouraged, to supplement our introductory talks, to add details and flavour.

What would please me would be the chance to ask my own questions.

Since pressure and temperature, hence relative humidity, vary with altitude, are readings corrected to sea level equivalents before incorporation in global charts? If so, what lapse rates are assumed, for although these can be non-linear and even irregular, they are also dependent on the presence of inversions? Pressure also varies with wind strength which in turn depends upon the terrain - is this taken into account?

Since actual readings come from random locations, often very widely spaced, how are these interpolated or even extrapolated between closely-spaced regular grid points? Chaos theory suggests that precise accuracy is vital, down to the contributions from each butterfly. How can this be explained to a general audience at the level of a U3A study group?

To me, the weather is a wholly relevant study, which requires an authoritative basis for popular treatment, while U3A must be uniquely well qualified to achieve this.

Keith Emslie, Lytham St Annes U3A

“Did you realise that SOURCES is an anagram of CROESUS?”

“No, I didn’t. That’s rich!”

# ROMANCING THE TOME

Storytelling and its fairies have little in common with mathematics. Either one will cause eyes to glaze over as memories return of uncomprehending boredom or of reading Enid Blyton to babies. Neither case should be endured.

Stories from ages past can be strictly adult material, concerning events and characters more potent than those appearing on TV. Mathematics, too, has its romances. It was a bored schoolgirl who began to listen to the tale of René des Cartes and Queen Christina. She later admitted that, for her, maths had taken on another, unexpected, dimension.

René did not quite know what to do with his life. At times, in the army and, later, as a cleric, there were two things in particular that he disliked. One of these was people fussing him and the other was cold. He could not stand the cold.

It was in the army, stationed on the Rhine, where he spent much of his time huddled in an 'oven'. This particular oven was a tent with a brazier in it. It was there that he thought up the solution to a problem which had evaded everyone for ages – the quadratic equation. It is only necessary to know that this is essential to the building of aircraft, bridges, insurance tables and much more. Everybody went crazy about him in an academic sort of way. He was the Einstein and the Bill Gates of his day. All over Europe people invited him to their palaces, universities and salons.

The Queen of Sweden was just eighteen years old, headstrong, intelligent and spoilt. She wanted the best mathematician in the world to come and teach her maths. René was filled with horror. Sweden was cold and would no doubt kill him. No. He hid in rented chateaux or mansions with only one priest knowing where he was. He was hunted down and imperious commands were issued for his attendance on the Queen. He refused. Christina sent a battleship to France to fetch him. Reluctantly, with much foot dragging, he went aboard the ship.

What misery he endured we do not know but, in Sweden, on the command to attend Her Majesty, he pleaded for a few days delay. He needed to 'acclimatise' himself to the cold. His request was reluctantly granted. Finally, the two met, at five o'clock in the morning, in an unheated library. The meeting was not a success. She, the imperious Queen, slapping her boots with a riding crop, impatient to go hunting. He, frozen and an academic. They never met again. The cold killed him, as he had said it would.

Who said maths was dry?

**Peter Maskens, Havering (London) U3A**

# MAKING IT MEANINGFUL

As a layman or novice, nay, virtual ignoramus when it comes to matters mathematical and astronomical or cosmological, I am always grateful when a writer, deemed 'popular' when penning a scientific article for a general readership, succeeds in enabling me to grasp the significance of a very large number. And I mean VERY large. I am at home with 'several million' and even with the odd 'billion or two' but am utterly defeated when it comes to visualising a billion trillion or the number of grains of sand on the beaches of the Bahamas. But I was grateful to a writer named John Gribbin when he informed me that the size of a nucleus within an atom is in the same proportion as a grain of sand to the Royal Albert Hall. That brings it home for me.

Later in the same book, I was faced with trying to comprehend the enormity that is the diameter of the Milky Way Galaxy. To be told that this is 28,000 parsecs means that one has to remember that a parsec is defined as a distance of 3.2616 light years (where a light year is the distance that light, travelling at 299,792km per second, would travel in a year). Do you see what I mean?

So, in the absence this time of a helpful Albert Hall type analogy, I thought I would try to devise my own way of visualising this monstrously gargantuan distance. With the help of the website www.census.gov/cgi-bin/ipc/popclockw, which is itself fascinating, I discovered that the estimated world population was 6,230,370,494. Using this information I was able to calculate for myself (my goodness, I hope I have got this right!) the following astounding fact: if we stationed the entire population of the world along a straight line with one million kilometres separating each individual from the next, it would need an additional 138 such populations, strung out in the same way, to reach from one end of the Milky Way Galaxy to the other.

And, if they were all queuing to get into the Albert Hall, quite a few of them would be disappointed! (By the way the world's population increased by about 70 million between June 2001 and June 2002.)

**The Editor**

# U3A ART ONLINE

In recent months, the U3A's Online courses have been making the news. In our last issue (p.5) Audrey Loraine, who devised and administered the course on Italian Renaissance Painting, described the course. In this issue two participants write of their experiences in following the course.

With great delight I read in the U3A News that a course was being offered via the internet on Italian Painting 1400 to 1600. Having an interest and enthusiasm for the subject would, I hoped, overcome my apprehension about using the Internet.

Happily the eight week long course did just that. I contacted the organiser and originator, Audrey Loraine

by letter, duly sent off the fee of £5.00, was accepted and given a date for the beginning of the course. An email from the technical manager, Paul Baron, arrived giving me details of how to get into the coursework and offering help with using a computer online. We were asked to submit a profile in order that other participants on the course would get to know a bit about us. Only a few did this so that might have curtailed our 'chatting' through e-mail.

The whole course was well set out and clear to understand. Audrey sent a very good introduction with everything one needed to know and a few things necessary for the practical exercises. The first three units have these exercises and they give a valuable insight into the techniques practised by the artists at that time.

With some excitement I went online on the given date. Brought up the U3A web page, keyed into the course and enjoyed the adventure.

Right from the beginning the course, content was stimulating and I felt a sense of a shared experience and the fun of making my first fresco! Using the computer was at first worrying but soon it became straightforward. Downloading and printing the course each week went well but links on the Internet could be tricky. Communications with the tutor and other participants were so quick using the Internet and any help needed met with a sympathetic response. Our email addresses were grouped so that any message sent was received by the entire group.

A minor setback happened when several of us caught a virus but with help from Paul and my husband it was overcome.

Units completed and emailed to the tutor each week were responded to with helpful and encouraging observations. Five to eight hours were spent on each unit, many more hours were spent reading up the subject and anything to do with that period, really enjoyable. Thank you, Audrey.

**Thelma Ede**

What better indication of the way in which online learning ignores frontiers than this evocative report from Down Under?

It is 38 degrees Celsius. I'm working in the shade of an old almond tree watched by two cockatoos. I'm using a flexible knife - one that has seen better days spreading pâté - to cover an old tile with Polyfilla. There is more Polyfilla on my fingers than on the tile but it doesn't matter. This 76 year-old is a child again, bent on discovery and loving it.

When I enrolled for the Italian Renaissance Art Course through U3A Australia I wondered how it could possibly include practical work. I'm finding out.

All the exercises, especially the practical ones, helped me beyond measure to appreciate the skill, hard work and perseverance of artisans and artists working in Fresco, Tempera and Oil. I began to understand the challenges they faced, the competition and the influence of guilds and patrons.

I had long admired Renaissance artists and years ago had jostled with other tourists to look at works of art in Europe. But now my eyes were being opened and I was seeing them for the first time. I learned to look for evidence of patronage, perspective, balance, styles, light and shade. The use of symbolism led me into re-visiting Greek and Roman mythology. I read relevant biographies and became fascinated by political, religious and social attitudes of the times.

My computer worked overtime. A computer novice, I grew in confidence following the links provided and used the Internet to visit galleries and cities all over the world. Friends came good with early birthday presents of reference books while I rediscovered resources available in my local library.

Diffident at first about offering comment or opinion, thinking I had little to offer, I soon discovered that my contributions were warmly welcomed. My tutor, Audrey Loraine, gave me prompt, encouraging and detailed feedback. It was like having a wonderfully informed guide by my side as I explored the many aspects of the units presented. A bonus was being able to get to know other students in the process and maintaining contact with them.

I've enjoyed several courses through U3A Australia but the course in Italian Renaissance Art was the best ever. I wanted it to go on forever.

You may not have an almond tree or cockatoos keeping an eye on you, but if an intellectually stimulating, fascinating and friendly programme has an appeal, this could be the one for you.

**Phyllis Bassett, South Australia**

# LEARNING AND TEACHING IN LATER LIFE

Reporting on an address given at the U3A Languages Study Day at Godalming College on April 4th 2002 by PROFESSOR DAVID JAMES, PROFESSOR OF ADULT EDUCATION AT THE UNIVERSITY OF SURREY

Professor James gave a very erudite talk, the main points of which were simply and clearly presented at each stage by the use of slides and an overhead projector. He said that, as a psychologist, he was interested in the effects of ageing on learning and he went on to outline two theories relating to the way we learn: the first is the way a child learns, through imitation and a system of selective rewards, very centred on a teacher / parent, and the later learning of adults, which is learning-centred and based more on understanding.

From learning in general Professor James went on to speak about research in the field of language learning. Members were particularly interested in Chomsky's belief that a child arrives already programmed to learn

a language, especially with grammatical and syntactical rules, and that there are therefore innate abilities related to language. This seems to be confirmed by more recent work by Professor Anthony Manca of Oxford University which suggests that a small number of genes may be responsible for the development of language. Another recent finding is that only about 11% of the brain is used in our everyday functioning - the rest has been described as "a silent area".

As regards the task of group leaders in the U3A, there needs to be an awareness of the needs that we all have to function effectively in society, from basic survival to self-fulfilment. The learning environment would ideally allow for worthwhile activities, task satisfaction and socio-emotional support. The group leader is thus a promoter of learning, a facilitator of motivation and an administrator of resources, including time. Since the group leader has the same needs, he/she must see some development or growth in the group's activities in order to be stimulated to continue and to feel that her/his contribution is valued.

Ageing was defined by Professor James as "changes which occur as time passes". The changes which occur in the brain of an older person are linked to the hardening of tissues and nerve-cells, which include the hardening and strengthening of the bridges created in early memory traces, so that we tend to remember past events quite vividly. As nerve cells continue to harden, however, new bridges formed between pathways linked in the learning process are correspondingly weaker and we therefore find it harder to remember recent learning.

We learned much from this address, and many questions were asked and answered. Professor James spoke in such a witty and stimulating way that everyone present found it an enjoyable experience.

**Gloria Blackburne, Languages Co-ordinator**

# SPINE-TINGLING

In Issue No.16 Martin Funnell, the Architecture Network Co-ordinator, wrote of the ‘spine-tingling’ effect of architecture as an art form. Readers were invited to come up with their own examples of the spine-tingling effect. We have had several responses to date. More would be welcome for future issues.

# ARCHITECTURE/MUSIC

So much has been written to the detriment of "modern" British post-war architecture, yet as a first term architectural student in the Autumn of 1951, I remember how I marvelled at the appeal of the Royal Festival Hall when, one Saturday moming, we were shown around this magnificent building so shortly after it had been opened.

From the back of the Grand Tier, we watched as a Canadian choir rehearsed with baritone soloist. I there and then formed the ambition to sing solo in the R.F.H. and must admit that only last Autumn I achieved half a century of not having attained that ambition!

Coincidental though it may be, the life of the Hall almost exactly parallels the Golden Jubilee years of H.M. the Queen. It was built at a time of great hope, especially among my generation. A truly modern concert hall floating "like an egg in a glass box" over the dramatic space which flowed through the public levels below and which, although it began to lose its identity in the 70s and 80s, is now restored to function as a popular public open meeting place.

I have sung there many times in a number of London choirs, often after the completion of a London Marathon on the same day, and on occasion have been a member of the audience - yet, no matter how often I enter the building, I never cease to admire the ability of Leslie Martin, Peter Moro and all who worked on the 'crash' design programme.

Martin Funnell commented that visiting an example of modern architecture can be a more spine-tingling experience than music.

But what surely can be more spine-tingling than the combination of both good modern architecture and good music, spiced with not a little nostalgia?

**John Humphries**
**Haywards Heath U3A**

# PAINTING

My nomination for the spine-tingling effect is: Best portrait of a woman - Mary, Countess Howe, by Thomas Gainsborough, The Iveagh Bequest, Kenwood House, London.

Her eyes, compelling and arresting, speak to you over a gap of more than 220 years.

**Paul S. Clasby**


# MUSIC

My nomination for a tremendously spine-tingling piece has the following specification – Composer: Franz Schubert, Poet: Johann von Goethe, Singer: Dietrich Fischer-Dieskau, Accompanist: Gerald Moore. And the title? Der Erlkönig (The Erl-King). The piano imitates the galloping rhythm of the horse and the sinister pleading of the Erl-King, while the words tell the tragic story. The final single minor note is as surprising as it is over whelming.

**Helen Cox**

# EXPLORING PERSONAL RELATIONSHIPS

I have been asked to tell you something about the funny course I co-ordinate under the auspices of North London U3A. I say "funny" because it does not seem to fit into any recognised category, like Arts, Sciences, Languages, etc.

The concept is based on my conviction that, whatever else we bring (or fail to bring!) into our third age, we all have one asset, namely experience of life. We have seen good times and bad, we have made friends and perhaps even enemies, we have lived through conflicts - emotional and intellectual. As we grow older, we are less able to cope and the need for a quiet life, free from stresses, increases. Is there anything we can do to make our lives easier?

And so the idea of a course now called "**Exploring Personal Relationships: Can we avoid disputes? Can we resolve conflicts?**" was born. In the fifth year we enlarged our original remit of 'family relationships' to the present 'personal relationships', taking in neighbours, business partners, friends, and the like.

Having spent most of my life at the Bar, eight years as a deputy judge, and some 16 years as a (part-time) family mediator, I have no qualification as a mental health professional. Accordingly, I have always made it abundantly clear that one of the basic principles of this course is that group members' personal problems are

not discussed. Another principle is that we try to reach an amicable solution to conflicts.

How do we do this? Members of the group bring imaginary situations in which two people (or groups of people) have what appears to be an insoluble disagreement. When we meet, we decide who is going to role-play the parties to the dispute, and who is going to be the mediator. Each of the parties gets a 'script' which I prepared in advance setting out his/her own position. It is then up to each of the parties to present their case to the mediator and the other party, the mediator's task being to facilitate a mutually acceptable solution to the conflict. More often than not agreement is reached without either of the parties losing face. The group as a whole then discusses the problem and the way in which it was resolved or failed to get resolved. The discussions are always lively, and frequently passionate and noisy, spilling over into the kitchen where a cup of tea closes the proceedings.

Pretending to be a character in an imaginary situation and being in 'role' has a wonderfully liberating effect even on normally shy persons. I have been able to observe quite remarkable increases in self-confidence.

The autumn term of 2002 will see the beginning of the sixth year of this group, many of whose members have been regulars since the first day. The maximum number of members is 10. We meet in my home for two hours on alternate Friday afternoons.

**Toni Gerard, North London U3A**

# DIGITAL TV

I wonder how many readers have access to **digital** (as opposed to analogue) television (by cable, aerial or dish)? Before very long we shall all have to have made the switch. Remember when we had to convert to VHF radio?

By the time you are reading this the new BBC 4 channel will have been up and running for several months and I am sure that a number of you with access to it will have been watching and forming an opinion about the nature and the quality of its output. BBC 4 has set out to be a 'serious' channel – although it has not gone so far as to claim to be an 'arts' channel.

There are – as far as I know – only two digital channels currently broadcasting that devote themselves exclusively to the arts. These are "Performance Channel" on cable and "Artsworld" on satellite (Sky channel 199). "Digital Classics" on satellite (Sky channel 464) closed down in August after a short-lived switch from being a subscription channel to free-to-air. "Artsworld" went through a nail-biting crisis in July when it was saved from closure at the eleventh hour, waiting until July 30th before announcing the rescue to its devotees.

Sadly, when the BBC launched its new channel 4, it simultaneously closed down another digital channel, BBC Knowledge, which had, for quite some time, been broadcasting an excellent selection of repeats from BBC2 in particular. Back in February, BBC Knowledge had already put back the start of its scheduling from its customary 8am to the much later time of 7pm. A move calculated, one imagines, to prepare us for the

also much later start time of the new BBC 4 channel, but also to liberate the frequency for a new children's channel.

It would appear that the net result of these recent events is to provide digital viewers with a much-reduced diet of serious programming. It will be a matter of considerable interest whether the new Channel 4 is thought to have lived up to the claims made for it. One looks to the BBC, among broadcasters, to be at the forefront of 'educational' television in the broadest sense. Is the Corporation living up to its reputation?

Readers might like to send in some observations on this topic and, if space permits, perhaps the next issue of SOURCES might carry some snippets of critical acclaim (or brickbats). As members of the U3A, we count television and radio among the many sources that inform, inspire and educate us in our pursuit of lifelong learning and membership of our study groups. Are we being served as well as once we were?

**The Editor**

Readers may not immediately associate driving and driving skills with U3A learning activities but the contribution that follows may provide pause for thought and perhaps inspire some imitations!

# IAM FOR U3A?

How many car driving members of U3A think of taking The Institute of Advanced Motorists driving test?

Although I had been driving since 1937, I drove very little during the ten years of my husband's retirement. After his death, I was not sure that I was still a 'safe' driver, so I decided to take the above test to find out - I knew, of course, that at my age, I would not pass, but I would know that I was 'safe'. I am 89 years old, and I have just driven to Cheltenham to our Summer School, and next week I shall be driving to Durham. I passed the Test in 1995, and it was the best thing I have ever done. It bas enabled me to enjoy my driving with confidence.

How do you start? Apply to your local I.A.M. and you will be assigned to a person who will accompany you for a number of hours' driving, in order to eradicate bad driving habits acquired over the years. Then you are taken by another Member for a test drive of one and a half hours, covering the skills you must demonstrate. When you are considered 'ready' you take the Test. My examiner was an 18-stone ex-police traffic driver/examiner. If you drive at 31 m.p.h. in a built up area, you are immediately failed, but you must do 70 mph. on motorways and 60 mph on all roads not otherwise designated. You are questioned on the Highway Code (and other questions may be asked) and you must execute other road manoeuvres. For me, the most difficult thing was having to 'talk' my driving for the whole one and a half hours, and sometimes answering questions put by the examiner.

When you do pass, it's wonderful, and you will certainly be a much better driver.

**Morfydd Adamson, Wirral U3A**

[Look out in our next issue for a report on an unusual Motoring Group on the south coast.]

# SCE REPORT

## Report of the Standing Committee for Education Meetings of 23 April and 11 June 2002

The timings of the publication date for Sources and the SCE meetings means that there are two meetings on which to report - on both occasions Keith Richards was in the Chair.

In his opening remarks Keith told members about a link that had recently been established with the British Museum leading to the formation of a pilot research group which will enquire into the use made of the museum by older learners for 'object based research'. Keith also reported that he is soon to visit the Victoria and Albert Museum to discuss the possibility of a link with that organisation and, on the same theme, the next meeting of the Science and Technology Network is to take place at the Science Museum in South Kensington. Other aspects of the work of the Subject Networks were also discussed at both meetings including the very successful annual meeting of the Subject Network Co-ordinators and the seventh Annual Study Day organised in Godalming by the Languages Network.

Another regular feature of the SCE agendas is the work of the Resources Centre and in a review of its operation Elizabeth Gibson drew attention to the following: -

There are 1197 registered borrowers representing 75% of U3As

More than 2,000 enquiries are logged and dealt with in a year

Loans are made at the rate of more than 2,500 per year

A total of 81 borrowers had now registered to use the new on-line catalogue facility

Month by month, the centre's activity in 2001-2002 has been greater than in the previous year

Other points to note were: - SOURCES will have a display stand at the Exeter Conference; two new On Line

courses, 'Venice and her Artists' and 'Writing Poetry', were being prepared for presentation on the website; and articles about U3A had appeared recently in 'Lifelong Learning News' - a DfES publication and 'First', the magazine of the Local Government Association. The agenda of the next SCE meeting will include discussions on how the networks might develop in the future and the extent of U3A outreach / research activities.

Finally, SCE members were informed that the DfES has awarded the Trust a contract, worth £34,360 over two years, to (i) develop the Subject Networks, (ii) survey the ways in which the U3As organise their learning activities, (iii) continue with the organisation of Group Leader Support workshops and (iv) continue with U3A development work in 'greenfield' sites including multicultural U3As. It was agreed that this was an important development that would enable the SCE to continue to provide a full range of support for the U3A's learning activities.

**Len Street**

# U3A LEARNING SUPPORT GROUP

**(Sub-committee of the SCE)**

Marooned at home on wet and windy days it is comforting to know that one can still explore the wider world from a desktop. On one such day recently I stumbled upon a report on the Internet of a UNESCO Conference held last year in honour of the Year of the Older Person. It was entitled “Learning Never Ends”. One of the themes which emerged from the Conference caught my eye.

“Learning needs to be redefined. Learning for adults transcends schooling and classes and involves many types of self-directed, informal and participatory learning, all of which need to be encouraged.”

Since the last issue of SOURCES the U3A Learning Support Group has been busy developing ideas and strategies on the theme of “encouragement”. The Group has recently been awarded a grant from the DfES specifically for support for U3A learning groups and a project has been set up which will run for a period of two years. If we were an institution our work would have to be directed solely at the issue of teacher training but because of the U3A’s unique style of shared responsibility learning we have the luxury of being able to look at the learning group as a whole and all that that implies. In our most recent meetings we have been considering the issue of groups eager to learn but who have no readily available tutors. By looking at this situation in a different way we hope that we can demonstrate that it is possible for members of a U3A group genuinely to share the tutoring role and ultimately to have a very positive learning experience. We will also be considering the issue of effective participation in groups and how that can be defined and encouraged.

In practical terms how can the Learning Support Group give real support and help to individual U3As? We are finalising the setting up of a Network of regional contacts for Learning Support matters with whom we will liaise very closely. We hope to be able to publish the names and contact details of the Network members in the next issue of SOURCES after the first planning meeting in mid November. It is our aim to

be able to call on the DfES grant to respond to requests to mount Learning Support Study Days and Workshops in different parts of the country to consider issues which you raise. Members of the Learning Support Group and the new regional Network would be closely involved. We will always consider requests for help and respond if we can. And please keep your ideas coming. We have already received some very helpful letters as a result of the article in the last issue of SOURCES. Thank you to everyone for their contributions. We, too, are still learning.

**Elaine Williams (Convenor)**

Contact: Elaine Williams, U3A Learning Support,

Third Age Trust, 26 Harrison Street, London WC1H 8JW or e-mail u3alearningsupport@tesco.net

SOURCES PUBLICATION DATES

Sources currently appears three times a year, with publication dates in November, March and June.

# EUROPEAN STUDIES

"Between thirty and forty U3A branches now either have, or are in course of setting up, European Studies groups. Naturally there are variations in the approach adopted. Some concentrate on the EU; others embrace the EU together with general European history and broad cultural issues. Some rely largely on outside speakers; others operate on the more typical U3A self-help basis."

This quotation comes from the first issue of a Newsletter set up by the Co-ordinator of the U3A European Studies Network, Derek Stroud. Derek may be contacted as follows:

23A Avondale Road, Fleet, Hampshire GU51 3BH

*Tel/Fax: 01252 615816*

E-mail: derekstroud@csma-netlink.co.uk

Some relevant websites appear in our website corner.

# I CAN'T WORK IT OUT

Some time ago, my wife came up with an idea that might be appropriate to mention in this issue which is devoted (in part, at least) to Mathematics. She was commenting on the fact that some people seemed better able to cope with the mental arithmetic required in everyday situations, such as currency conversions, percentage discounts, rates of interest, quantities of paint, wallpaper and timber required for household jobs, and so on. We decided that it might not necessarily be true to say that some people are just naturally better equipped to handle number-crunching than others. It may simply be that some people have developed short-cut methods or 'tricks' of various kinds that provide an alternative insight into a given problem of calculation.

I have tried testing this theory out on unsuspecting friends and perhaps one example of what I am driving at will suffice. Imagine someone contemplating the purchase of eight Easter eggs from a French patisserie (one for each grandchild), priced at 19 Euros each. What are eight nineteens? Many people's brains will simply go into 'Help!' mode at the thought. But point out that this is actually eight twenties minus eight and that particular calculation might seem far more manageable.

I just wonder if there is a **Mental Arithmetic** or a **Mathematics** study group anywhere in the U3A?

**The Editor**

# THE INTERNET & LEARNING RESOURCES

Most people these days would, one presumes, agree that the Internet has become an established part of everyday life. Admittedly, the Internet has not yet penetrated into the home in quite the same way that TV and radio have. Nonetheless, the day cannot be far off when we shall regard it in much the same light as we now regard TV and radio. This is particularly likely, when we consider that the technology of digital TV already permits Internet access through the domestic TV set. In addition, the Library service is increasingly offering low-cost or no-cost public access computing facilities, including Internet and Email. More and more people are seeking out the training needed to equip them with the skills to comprehend and exploit 21st century technology.

Familiarity with and actual use of the Internet may well be at a lower level among Third Agers than other age groups – though even this observation may be debatable. Certainly, the experience of those U3A members who have undertaken training of their peers in ICT (Information and Communications Technology) skills points to a keen interest on the part of Third Agers to remedy gaps in their knowledge – if only to be better able to comprehend what the grandchildren are up to!

Even supposing we accept that the present generation of U3A members may well contain a higher proportion of the 'uninitiated' than the younger generations, it is nevertheless to be presumed that future intakes into the ranks of the U3A will be more than likely to possess the ICT skills of the day.

Given that the technology is very much with us (and unlikely to go away) and given that increasing numbers of U3A members are likely to be Internet users, it seems perfectly reasonable – indeed, desirable – that a publication such as this, which calls itself an Educational Bulletin, should embrace this state of affairs. The name of this Bulletin is SOURCES and the Internet is itself one of the most amazing sources of learning and information the world has ever known.

This is not to say that the world of books has had its day or that the experience of small group study that lies at the root and the heart of the U3A movement is about to disappear - though it is quite possible that such propositions would make for lively debate. My own position on this is perfectly straightforward. The Internet is a *new* resource, not a replacement for existing ones. Radio did not bring about the demise of newspapers, TV did not sound the death knell for radio, and the telephone did not put an end to letter writing. Some would say quite the reverse – that each new development has a way of breathing new life into the old. Certainly, the Internet is a new medium, but it is a medium with its own characteristics and its own 'slant' that can, and should, happily co-exist with other media. Some will regard it as a challenge in its own right and as part of the lifelong learning process.

Most of those who have successfully surmounted the relatively few hurdles necessary to acquire a working competence with the Internet will have been thrilled and delighted at the Aladdin's cave that they have unlocked for themselves. One example may perhaps suffice for the moment, one that unfailingly produces gasps of pleasure and astonishment when demonstrated before an audience of 'novices'. On the Internet one is able to 'visit' virtually any and every major art gallery and museum around the world – the Prado in Madrid, the Louvre in Paris, the Tate, the Hermitage, the Uffizi, the list goes on – and call up satisfyingly detailed images of the treasures they contain – the paintings, the sculptures, the porcelain, the artefacts and the tapestries. What more stunning resource than this can be imagined for the student and the lover of art, or the member of the U3A study group preparing for their contribution to next month's meeting of the Art Appreciation circle.

Returning to my earlier point that this SOURCES Bulletin should embrace the Internet as one of the vital resources to be considered by any group of U3A learners – whatever the topic, whatever the subject matter – I have a suggestion for the readership. I would propose that future issues SOURCES should feature a corner in which aspects of the Internet as a learning resource can be discussed, where interesting websites are recommended, where others pass on their experiences for the benefit of others. This could also be a place where queries are answered, where advice is given about ways of exploiting the Internet to better effect.

**The Editor**

# WEBSITES

Recommendations from readers on useful websites. Every effort has been made to ensure the accuracy of the information. Apologies for any errors that may have crept in. Please send in your contributions to this corner.

# ASTRONOMY

www.solarviews.com/eng/homepage.htm

www.universetoday.com

www.spaceflightnow.com

www.skyandtelescope.com

www.nasa.gov

# METEOROLOGY

www.met-office.gov.uk

# EUROPEAN STUDIES

europa.eu.int.index.htm

www.euractiv.com

www.breakfastinbrussels. com

# GENEALOGY

www.cyndislist.com

www.familysearch.com

www.genuki.org.uk

www.origins.net

www.familyrecords.co.uk

www.bibliofox.co.uk

www.pro.gov.uk

www.sog.org.uk

## ROYAL SOCIETY

www.royalsoc.ac.uk

## DEMOGRAPHICS

www.census.gov/cgi-bin/ipc/popclockw

# SOME PERSONAL IMPRESSIONS OF CONFERENCE 2002

As the mist rose from Bodmin Moor just before 7 am on a lovely morning, I felt like Frodo Baggins crossing the Shire, daunted at the prospect of three days' travelling 100 miles each way as a day delegate. Would it be worth the effort, I wondered.

The University of Exeter campus, fifteen minutes' walk from the city centre, is hilly, scattered among beautiful trees, and confusing. Even Professor Blakemore got lost on the third day on the way to the lecture theatre, and he is used to mapping the brain. It was a relief to find the right building at last and to make contact, as we had arranged previously by email, with Jean Thompson. She was sitting at her display, one of many manned by people whose faces were unfamiliar but, as I peered at chests and bosoms to read their labels, the names were as well known as spices in a kitchen cupboard. There was Paul Baron, (desperate for coffee), Mike Williams with details of the new-look 'Sources', his wife Elaine, Lin Jonas, behind a cheery smile and great piles of documents, pamphlets and goods which quickly teased most of my spare cash from my pocket.

Tuesday's AGM was generally what I had expected, a rather uneventful, statutory requirement punctuated with a couple of interesting moments. What a shame, though, that there was no competition for any of the posts to be filled. The theme of the conference was 'Communications' and the PowerPoint presentations from the platform were extremely effective.

Several features of the event remain prominent in my memory. The first has to be the riveting lecture by Professor Colin Blakemore on the brain; no jargon but a talk full of fascinating information. Among the others were the debates and outcomes associated with the Conference Resolutions.

From all this, then, I retained two overriding impressions. The first is that of enthusiasm, the kind of enthusiasm the general public traditionally labels 'youthful.' The second is idealism, also often associated with the young. Both these qualities were reflected in the proceedings of the AGM where decisions were made that are uplifting, inspiring and cause for pride at belonging to such a vital, growing movement.

The words 'communication' and 'community' share the same root. Certainly the best forms of communication on this showing are to be found in face to face contact. Worth driving 200 miles a day, then? Emphatically yes, but next year I shall do all in my power to be resident in York!

**Ian Searle. Carrick. U3A**

# SUMMER SCHOOLS 2002

We held this year's Summer Schools at the University of Gloucestershire. The Cheltenham campus was ideal for U3A members. Residential villas were close to seminar rooms, dining areas and bar. The terrain was flat and all facilities within comfortable reach. Gloucestershire Conference staff provided excellent service in a pleasant and good-humoured manner. Local U3As were especially helpful with registration, guiding participants, particularly on a pouring wet day in the car park, and supporting us in the planning of events. Cheltenham surroundings created a delightful background with woodland and lake. Many of our members enjoyed the opportunity for fresh air and recreation after a day spent concentrating on their subjects. Seagulls jostling for territory produced the one discordant note. No such lack of harmony rose from our participants involved in a wide variety of courses.

Once again Summer School gave U3A members the opportunity to enjoy a residential experience. Everyone works hard at Summer School with tutors expecting the best everyone can do. For a few days members can concentrate on academic work, something many of you have asked for. Learning is combined with the pleasure of social interaction, making friends with similar interests from all over the country. Talking well into the night gives an added dimension to Summer School.

This is what U3A is about - education and the opportunity for education without the need for qualifications. The only criteria for joining a course are enthusiasm and a desire for knowledge. There are no exams at the end - Summer School truly embodies the belief that Learning is Fun. I like to think we are helping to fulfil Peter Laslett's vision of those who teach shall learn and those who learn shall teach. We share our life experience and knowledge with each other. Peter wanted affordable education for everyone. How

wonderful if we could offer the Summer Schools for nothing. Utopia has not arrived - even in U3A.

Our tutors always give generously of their time and knowledge in preparing and running courses. The depth and quality of the seminars reflect the amount of dedicated preparation that goes into making the Summer Schools successful. After following a Summer School course, I believe you will go home exhausted but satisfied.

We have come a long way in the four years since York. Phyllis Babb, then the Subject Networks Co-Ordinator, started with Study Days. The interest generated amongst U3A members has resulted in the need for two Summer Schools with a wide variety of subjects. Details of the 2003 programme will by now have been distributed in a general mailing.

I believe the Summer Schools are among our major successes. All U3As are individual and independent. Summer Schools make us aware that U3As flourish throughout the country. We come together, aware that we are all members of a large and flourishing movement. We can offer education, companionship and a sharing of life's experiences at these events.

**Sophie Deakin-Smith**

# RESOURCE CENTRE NEWS

At the U3A National Conference in Exeter in September I was asked to make a presentation for the pre-conference session. The theme of the conference this year was communication and I spoke about the way in which we try to communicate with members. Many of the delegates at the conference were regular and long-term users of the Resource Centre, but there were also many new people who knew little about it and who found the information very useful.

It occurred to me that there are many new readers of SOURCES who perhaps do not know what the Resource Centre is and are therefore hesitant to make contact with us, and that it might be helpful to reiterate exactly what we do, and how.

Firstly, it is important to remember that the Resource Centre collects non-book materials such as videos, slides, audiocassettes and CD-ROMs in subjects studied by U3A members. We make them available for short loan periods of three weeks to any group leader or member who would like to use them to support their topic of study. The loans are free, as are the outward postage costs, and the borrowers are only required to pay the postage for returning the item to us at the end of the loan. The items in the Resource Centre have been purchased during the last four years mainly from lottery grant funds and at the specific request of U3A members who recommended them. In some instances they have been donated by generous individual members or whole U3As who purchased them themselves and who no longer need them and would like other members to benefit from the items.

Subject lists of our stock are available free of charge and a complete list of the subject areas they cover was published in the last issue of SOURCES or can be obtained direct from the Resource Centre staff. In spring 2002 our catalogue was mounted on the Internet and is now available to search on the U3A website at u3a.org.uk (no 'www' necessary). For security reasons we restrict access to the catalogue to members who have registered with us and given us their full name, address, telephone number and the U3A they belong to. Once we have this information we add their details to our own user database and issue a personal user number and the password required for access.

To contact the Resource Centre you can write, e-mail, fax or telephone (on Tuesdays and Thursdays only please for phone calls) to the Resource Centre at the U3A National office in London: 26 Harrison Street, London WC1H 8JW Telephone: 0207 837 8838 Fax: 0207 837 8845 e-mail: national.office@u3a.org.uk When you request a loan you should give the titles of the items you would like to borrow and the date of the meeting when you wish to use them. This can be well ahead of the date when you make the request. The bookings will be recorded and the materials sent to you at the appropriate time. If we know the item will not be available for that date we will contact you to discuss possible options.

We also have Open University courses available for long loans of up to a year. These have been donated to the U3A by the Open University. When they update their courses they often have earlier editions of the course in the warehouse which they offer to us. These are seldom complete but are still useful to group leaders who are working at an advanced academic level. The full list of all we currently have was published in the February 2002 issue of SOURCES and will be supplemented by new courses which will be sent to us this autumn or next spring. If you would like a copy of the current list please request it from the address above. Postage on the courses has to be paid by the borrower (both ways, and it can be substantial - probably between £6 and £12 each way as booklets are very heavy to post) We will always discuss the course and postage details with you by phone to make sure that it is exactly what you want and that you agree the postage costs in advance.

I hope this information will encourage new readers of SOURCES and new members of the U3A to make contact with the Resource Centre, in the first instance to obtain lists of what we have in stock. You may be very surprised to see how much is available to you that you cannot get from your local public library or Blockbuster video shop! It does not matter to us whether you are 300 miles away or just down the road, the service is the same for every area of the country and as fast as your own local postal service! I look forward to hearing from you.

**Elizabeth Gibson, Resource Centre Manager**

# FORTHCOMING EVENTS

**ART**

Two Study Days have been arranged at the Barber Institute, Birmingham for 1st and 8th April 2002. For an application form, send a SAE to: B Perkins, 18 Homeabbey, High Street, Tewkesbury, Glos GL20 5BL.

## LANGUAGES

The next **Languages Study Day** will be held in Prince Henry's College, Evesham, on Saturday March 22nd 2003. Details and application forms will be available in late November 2002 from Gloria Blackburne, 20 Abbey Mill, Church Street, Bradford on Avon BA15 1HB (SAE please).

Language learning holidays in France: Both Fondvielle and the Tarn Centre will be offering courses to U3A members next year. Write for details to Fondvielle Language School, Taponas, 69 620 St. Vérand, France or Les Ateliers Linguistiques du Tarn, 'Fiolles' 81600 Brens-Gaillac, France.

Also, Saga may be offering **a course in Tuscany** in 2003. For Details phone Saga on 0800 300 666.

## SCIENCE

U3A Explores Science at the RI

Monday 14th April 2003 at 1.30pm. The Royal Institution, 21 Albemarle Street, London W1.

Bookings are taken on a first-come, first-served basis. When the programme is finalised, details will be publicised in U3A News, Sources, on the U3A website and by your local U3A Committee.

## RESEARCH GROUPS IN LONDON MUSEUMS

Following the pilot scheme running this autumn in the British Museum, enabling U3A members to engage in object-based research, the Victoria & Albert and Science Museums are proposing similar groups. Interested members able to get to London for a weekly meeting (Jan-March 2003) should contact Keith Richards (Chairman SCE) via the National Office.

## SUMMER SCHOOLS 2003

Gloucestershire University, Cheltenham Campus

Tuesday 22nd - Friday 25th July

Tuesday 29th July- Friday 1st August

## MUSIC

The Music Network will be promoting a further Study Day in March 2003, most likely a Saturday. Details TBA. For a programme please contact Tony Middleton on 02476 304122

The Orchestra of the Age of Enlightenment is organising a special Study Day on the theme: "**Creation: A celebration of life on earth**" for U3A on 25 January 2003, including attendance at the gala performance of Haydn's oratorio "The Creation", in the Royal Festival Hall. There are 120 places and the cost will be £19 per person, including the concert ticket (normal price £26).

Details and booking form obtainable from Marion Bieber, U3A in London, Old Hampstead Town Hall, 213 Haverstock Hill, London NW3 2QP or e-mail: bieb@onetel.net.uk

# U3A ONLINE COURSES 2003

## UK WINTER PROGRAMME

## VENICE AND HER ARTISTS

By Audrey Loraine

A pilot course (Reg. No. 004) starting 12 January

DESIGN IN YOUR LIFE

By Jean Thompson

(Reg. No. 001) starting 19 January

## AUSTRALIAN PROGRAMME

**AGEING and RETIREMENT**

**ASTRONOMY**

**BOTANY FOR KNOWLEDGE and ENJOYMENT**

**THE ROMANS**

**ANTARCTICA: THE FROZEN CONTINENT**

**AUTOBIOGRAPHY and JOURNALLING**

**CONTINENTS ON THE MOVE**

**GENEALOGY**

# CREATIVE WRITING – FICTION

By Jean Thompson

(Reg. No. 003) starting 26 January

Course outlines, evaluations and enrolment forms

are available at www.u3aonline.org.au

Fee per person per course is £5.

Further information and an application form may be obtained from the U3A website at u3a.org.uk

Click on Online Courses

Fee for each course £5. Cheques payable to 'The Third Age Trust' to be sent to the UK U3A National Office

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