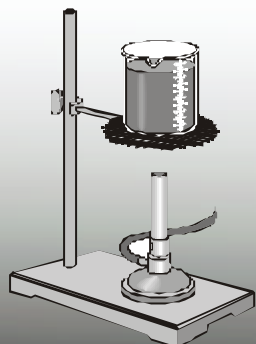
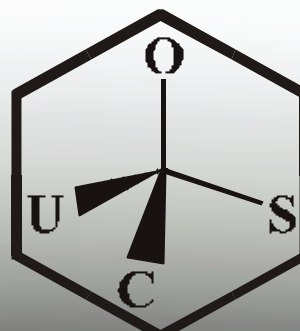


October 2002



Touch-Paper



The Newsletter of the Open University Chemistry Society



AGM and Lecture Weekend

2002

Great Barr Hotel 2-3 November

PROGRAMME

Saturday 2 November

10.30 am Committee Meeting

1.30 pm Annual General Meeting

4.00 pm Lecture

Dr Michael Cartwright
Cranfield

5.15 pm Lecture

Dr Duncan MacQuarrie,
University of York

ChemSoc Dinner

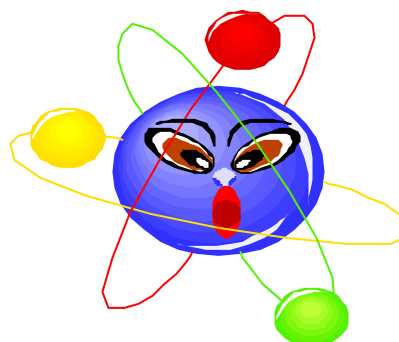
The Infamous ChemSoc Quiz

Sunday 3 November

10.00 am Lecture

Professor David Shuker
The Open University

Visit to Cadbury's World



Booking Form on the last page of TouchPaper

Annual Meeting Agenda

1. Apologies for absence
2. Minutes of last AGM 2001
(available at the meeting)
 - 2.1. Matters arising
3. President's Report
4. Chair's Report
5. Treasurer's Report
6. Membership Secretary's Report
7. Marketing Report
8. TouchPaper
9. Future Events
 - 9.1 Revision Weekend
 - 9.2 Revision Days – London, Glasgow
10. Elections
 - 10.1 President 2005
11. Any other business
As the meeting must be kept to two hours, matters arising from Any Other Business may be curtailed; any matter not dealt with can be brought to the attention of the Secretary for future discussion.
12. Date of next AGM
1 November 2003

Summary of OUCS Accounts 1 January - 31 December 2001

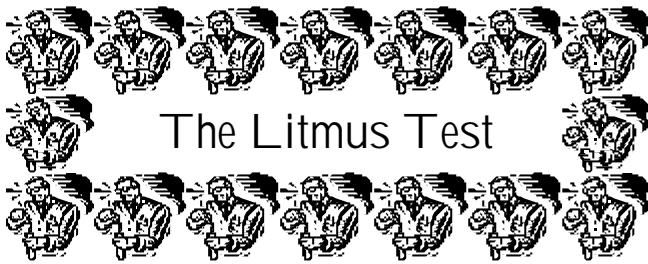
INCOME £

| | |
|------------------|----------------|
| Bank Interest | 7.16 |
| Glasgow Revision | 372.00 |
| Membership | 1800.00 |
| Green Symposium | 1950.00 |
| TOTAL | 4129.16 |
| Balance b/f | 2135.91 |
| TOTAL | 6265.07 |

EXPENDITURE £

| | |
|------------------|----------------|
| AGM | 616.18 |
| Computer | 139.97 |
| Gifts | 30.00 |
| Glasgow Revision | 399.00 |
| Media | 52.93 |
| Green Symposium | 256.48 |
| Photocopying | 243.79 |
| Postage | 47.66 |
| <i>Sesame</i> | 135.13 |
| Stationery | 234.16 |
| Sundries | 4.98 |
| TouchPaper | 443.39 |
| Travel Expenses | 102.70 |
| Unpaid cheque | 120.00 |
| TOTAL | 4859.55 |

BALANCE 1405.52



The Litmus Test

Where did you go to school?

At age eleven I started at Preston Catholic College which involved 52 miles, two trains and four buses a day from my home north of Lancaster. At 15, I moved to St Francis Xavier's College in Liverpool – I didn't meet the Beatles!

Did you go to University straight from school?

No I took a year out working in an Industrial Science Laboratory where I learned the Chemistry I had neglected at School.

What did you do before you joined The Open University?

I managed to gain two degrees at Oxford and continued with fellowships in cryogenic physics at Oxford and Sussex. At that time I was very much a pure physicist who felt that interesting science tended to start below 1K.

What are your outside interests and hobbies?

Sport has always been an obsession. I still play cricket for the OU and have played competitively in just about all the common sports involving swinging some sort of club. These days I am too slow and I try to preserve my ego through (inflated) memories of past glories. I can bore for England on sport.

What do you do for pleasure?

You don't really expect me to answer this do you? Oh ok. I have a pretty good collection of modern literature and will swap poetry quotes with anybody who is interested. And, sometimes, I sit and don't think.

What are your favourite TV and radio programmes?

The usual insomniac's lifelines. I am a closet Late Night Sumo fan. Musashimaru, Chiyona-



Professor Steve Swithenby
Dean of Science

fuji and friends are fairly inspiring. On the radio, there is no better programme than 'I'm Sorry I haven't a Clue'. Humphrey Littleton's timing is still impeccable.

Why did you choose biophysics?

In spite of what I said earlier, I did begin to wonder why I was working near Absolute Zero when the techniques of ultrasensitive magnetometry on which I was working might be of use in understanding human processes with the possibility of direct benefit to medicine. So, when I joined the OU, I started to develop biomagnetic measurement techniques. It was pretty lonely at first as I was the only person active in this field in the UK. Now such ideas are in the mainstream.

What is your current academic project?

I am collaborating with the Institute of Psychiatry in trying to understand the neurophysiological basis of autism. We measure the magnetic fields outside the heads of autistic and normal subjects as they perform standard tasks and map them back to the currents in the brain. We can follow this activity in time and so find out when and where the autistic and normal brains are responding differently.

Where do you see your research field going next?

Our study is one of a growing number of investigations of psychiatric problems. I believe we will gain a better fundamental and clinical un-

derstanding of depression, schizophrenia, dyslexia and so on through the dynamic imaging we can perform.

Why did you want to be Dean of Science?

I was already working in relatively senior positions in the University and felt that the role of Dean would allow me to be more effective in taking forward the ideas I considered important. In putting myself forward, I was also responding to the urging of others who had a similar vision of the future of Science.

What do you see as your major achievements, and your major disappointments, since you were elected as Dean?

The person specification for a Dean should contain the need for ‘unreasonable optimism’ but I do think we have made real progress over the last few years. We are gradually establishing a stronger interdisciplinary curriculum, Short courses are proving very popular with students

and are driving the wider OU along a new path. We have appointed some absolutely first-rate new staff and our research is progressing well. Disappointments – the difficulty we are having in simplifying our processes and the consequent overload on all staff.

Where will the Science Faculty be in 5 years time if you have your way?

Science will be providing a first-class undergraduate and postgraduate curriculum. Our research will be of international standard in all departments and we will be leading a public education programme that impacts on general understanding of Science (perhaps through further development of short courses allied to broadcasting.) And we will sleep more.

What would you like to do next? Find my cricket kit for tomorrow’s indoor-league cricket match. Now, where did I put my box?

Mystery Object?



Is this all that remains of a chemistry Lab?
What is this structure?
There is a £20 prize for the first correct entry received by the Editors.

Editorial

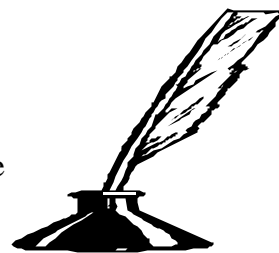
Welcome to the latest 2002 edition of TouchPaper from your Joint Editors. It seems like only yesterday that we were putting the last one together back in the Spring, yet here we are with the summer over and nights drawing in fast. We have both been very busy - Roger has done two weeks of residential school and Sue has done three weeks, including a week on the new chemistry ten-point course SXR 205 *Exploring the Molecular World*. It was a very good and successful experience, with lots of interesting chemistry to be done, but very hard work! We hope everyone has had a good summer too with whatever you did, be it OU or otherwise. The first year of the new 60 point chemistry course S205 *The Molecular World*, which Sue has tutored, is drawing to a close. It has been enjoyable but challenging for those of you who have done it; it has also had more than its fair share of first year course production problems, which the course team has worked very hard to sort out and minimize the effects on your study.

Thanks to those of you who sent us material for publication – although we do wonder if the other 498 copies of TouchPaper contain

ing our request for material were actually received! We are hoping to publish three editions next year – please see the schedule for dates below, and do send us material for inclusion.

We wondered if there are any crossword buffs out there who would enjoy compiling or doing a chemistry one. There is a prize of £10 for a crossword that is published. All correct entries received by the given date will be placed in the Panama hat, and a £10 prize will be awarded to the first one picked out.

Finally, we are sure that all members would wish to thank the outgoing President Stuart Bennett for his enthusiasm and guidance over the last two years. We welcome Lesley Smart as the incoming President, and look forward to the next two years of continuing success for OUCS.



**Roger Beck
Sue Whitaker
Joint Editors**



ChemSoc Diary

2-3 November 2002

AGM and Lecture Weekend, Great Barr Hotel, Birmingham

February/March 2003

ChemSoc Weekend in Scarborough – details later

26-28 September 2003

York Revision Weekend

1-2 November 2003

AGM and Lecture Weekend

Caption Competition

There were no (publishable) entries for this competition, so instead there is a mystery object competition on Page 4 of this TouchPaper. A £20 prize awaits the person who correctly identifies it.



TouchPaper Schedule — 2003

It is planned to produce issues in February, June and October. Please let the Editors have material for inclusion by the beginning of these months.

A New Way to Bottle Hydrogen

Clathrate hydrates, crystalline cages made of water molecules, are well known as containers for gases such as methane. But until recently most people believed hydrogen molecules were too small to be kept in these cages. Now Wendy Mao and her colleagues at the Carnegie Institution of Washington, University of Chicago and other institutions report in the 27 September *Science* that, under high pressure and low temperature, it is possible to create clathrate hydrates that can trap several molecules of hydrogen. This discovery may not only explain the evolution of hydrogen-rich atmospheres in planets, it could also lead to new ways of storing hydrogen for future cars powered by hydrogen-fuelled fuel cells.

According to Ho-kwang (Dave) Mao, one of the Carnegie researchers, the team created the clathrate by subjecting a mixture of hydrogen and water to 220 MPa at 300 K, or ambient temperature.

"Two regions formed inside the diamond anvil cell," Mao says, "an H₂ bubble and liquid water. When the cell was cooled to 249 K, a single, solid compound formed."

Using a number of probes, the researchers found two clathrates: a small cage containing 2 H₂ molecules, and a larger one containing 4 molecules. A remarkable characteristic of the clathrate hydrate is its stability.

"When we cooled it to 78 K - right above liquid

nitrogen temperature - and exposed it to a vacuum," Mao says, "the clathrate remained." This finding could point the way to new means of storing hydrogen, which is an ideal fuel for fuel cells and engines because it creates only water when oxidized.

"There are many methods used now - low-temperature liquid (20 K), high-pressure gas tanks, metal hydrides, nanotubes, hydrocarbons - for storing hydrogen, but each of them has different drawbacks," Mao says.

"Since liquid nitrogen temperatures are easy to maintain, it may be that storing these clathrates at 80 or 100 K would be feasible." For now, the biggest barrier to producing quantities of the clathrate is the high pressure needed to create them, but Mao says there may be ways of creating them at lower pressure regimes.

References:

Wendy L. Mao, Ho-kwang Mao, Alexander F. Goncharov, *et al.* Hydrogen clusters in clathrate hydrate. *Science* 2002, **297** pp 2247-2249.

Louis Schlapbach & Andreas Zuttela. Hydrogen-storage materials for mobile applications. *Nature* 2001, **414** pp 353-358.

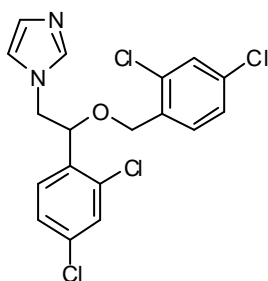
Jonathan Beard

'The Alchemist' September 2002.

Source: ChemWeb.com, <http://alchemist.chemweb.com> © Chem Web -

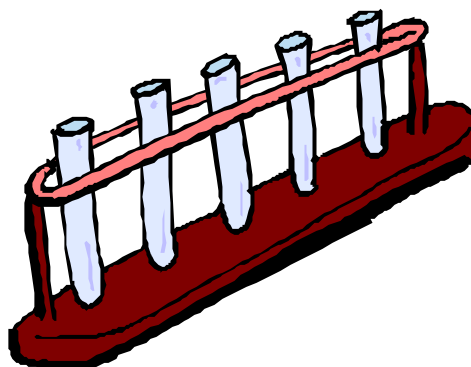
a division of Elsevier Science Ltd

Solution to 'What Molecule'



Well done Frank Hollis

1-[2-(2,4-Dichlorophenyl)-2-[(2,4-dichlorophenyl)methoxy]ethyl]-1H-imidazole





Goat's Grease for Hair Care!

It's hard to imagine an amorous lover enjoying running his fingers through his lady's hair after she

had applied goat's grease, iron rust, beef marrow, black sulphur or alum to make it more beautiful. But these were just some of the many weird wonderful and sometimes lethal ingredients used to colour hair since people first started trying to improve upon nature, and archaeologists tell us this took place at least 2,500 years ago.

Generally fashions have alternated regularly between blonde and dark, but every so often more way out shades have been *de rigour*. Don't imagine that the green and blue afro wigs seen about a few years ago were new, indigo hair was considered smart in Egypt in 12 BC and at roughly the same time the Anglo-Saxons were cutting a dash with green, orange and deep blue hair.

Annual Wash

Achieving brunette locks presented our forebears with considerable problems. Roman women – who incidentally only washed their hair once a year, for fear of disturbing the spirit that guarded the head - rubbed wood ash, berries, vinegar and saffron into their



hair to get the fashionable blonde look. Fifteenth century Venetian ladies thought sitting in the moonlight lightened hair, and century later English beauties tried to achieve the same ends with sulphur and sitting in the sun.

It was just about as bad as dyeing hair darker. The ancient Romans fermented a mixture of vinegar in a lead vessel,

and some 1,700 years later, ladies were advised to leave a mixture of red wine, bark and walnut husks 'six days in the Sun in Leaden Mortar', with the resulting concoction being able to turn any coloured hair black as jet.



Eighteenth century ladies still made their own dyes by stewing elderberries in red wine to obtain darker hair, but by 1892, a Mr Condy of Battersea was having great commercial success through selling an alarming sounding mixture of Permanganate of Potash, which stained both hair and skin a good strong chestnut.

With the arrival of the short 'bob' in the 1920s henna came back into vogue. This has been used to add rich tints since the days of the Ancient Egyptians, and is in fact very good for conditioning the hair.

Cotton Wool Hair

The bleach that created the blonde bombshells of the 1930s was not so beneficial to hair and those flaxen haired screen sirens really had very lack-lustre cotton wool hair.

For centuries people have thought of hair as something attractive, an adornment for the body or an item of high fashion, culminating in the extravagant styles of the 18th Century when hair was built upon a kind of scaffolding which was afterwards removed. It may come as a surprise, however, to learn that although hair has been treated to make it more decorative for centuries, it is only in the last hundred years that people have begun to regard it as something which should be kept clean. The extravagant eighteenth century styles were usually overrun with vermin!

**Carole Arnold
Leicester Shopwindow,
5 February 1975**

President
Stuart Bennett
Chemistry Department
The Open University
Milton Keynes
MK7 6AA

Chair
Valerie Rutherford
4 Wright Way
New Stevenson
Motherwell
ML1 4LB
valerie@avrutherford.
co.uk

Secretary
Pat Wilson
106 Coronation Road
Southville
Bristol
BS3 1AX
davebrava@aol.com

Treasurer
Paul Everett
36b Griffiths Avenue
St Marks
Cheltenham
GL51 7BL
everettpt@talk21.com

Membership Secretary
Carol Houghton
385 Liverpool Road
Hough Green
Widnes
WA8 7HR

Publicity
Kathie Yeowell
4 Bevil Court
Hoddesdon
Hertfordshire
EN11 9LX
kmy6@student.open.
ac.uk

Marketing
Vacant – volunteer
needed

Editors
Sue Whitaker and
Roger Beck
99 Hazelwood Lane
Palmers Green
London
N13 5HQ
sw99@tutor.open.ac.
uk
rbb2@tutor.open.ac.uk

OUSA Representative
Frank Hollis
92 Little Pynchons
Harlow
Essex
CM18 7DE
fjh4@tutor.open.ac.uk

Revision Events
Carole Arnold
51 Paddock Lane
Halifax
HX2 0NT
ca22@tutor.open.ac.uk

And
Lorraine Sandoe
10 Charlecone Drive
Chandlers Ford
Hampshire
SO53 1SF
lorraine.
sandoe@btinternet.com

Region 04
Denise Ingram
Aston University
Birmingham
B4 7ET
d.s.ingram@aston.ac.uk

Region 06
Janet Smith
27 Fairford Crescent
Downmead Park
Milton Keynes
MK15 9AJ
jes39@student.open.ac.uk

Region 07/08
Margaret Lister
21 Elston Place
Selby
Yorkshire
YO8 0ES

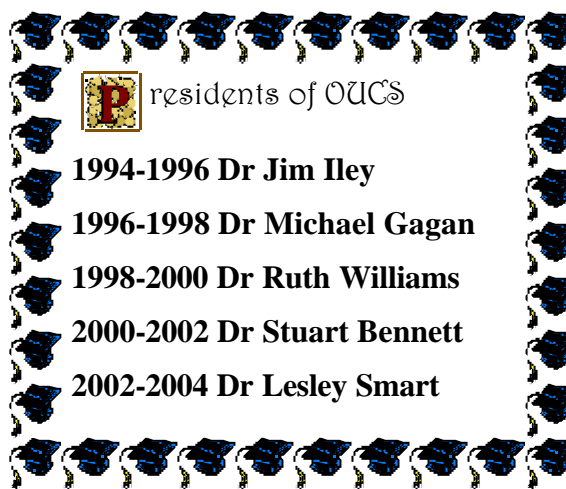
Region 10
Jan Davidge
19 St Mary's Close
Griffithstown
Pontypool
Torfaen
NP4 5LS

Region 11
Valerie Rutherford
4 Wright Way
New Stevenson
Motherwell
ML1 4LB
valerie@avrutherford.co.uk

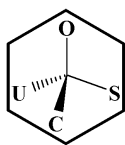
A Brief History of OUCS Time

The first ever Revision Weekend was held at Aston University, Birmingham in 1991. This was organized by Drs Stuart Bennett, David Johnson and Michael Gagan. The event was then transferred to the University of York for 1992, where Tony Brearton, Sally Janes and Carole Arnold took over its running.

In May 1992 TouchPaper was born with the help of Jim Iley and the Chemistry Department. The idea behind TouchPaper was to provide a means of regular contact between the Chemistry Department and the many people within the OU that have an interest in chemistry. Sally and Tony were unable to continue to help with the Revision Weekend in 1993, so Michael Gagan stepped in to help organize the



finances whilst Carole Arnold dealt with the bookings. It was during that period a few people got together and formed the Society as we know it and suggested that the first president should be Jim Iley as an acknowledgement for all his support.



The Open University Chemistry Society

AGM AND LECTURES IN THE MIDLANDS-SATURDAY 2 NOVEMBER 2002

Following the success of past years, the Chemistry Society is once again holding its Annual General Meeting in style, at the Great Barr Hotel, near Birmingham.

The AGM will be followed by informative, exciting lectures by leading scientists. After dinner on the Saturday will be the infamous OUCS quiz evening followed on Sunday by the usual visit to Cadbury's World to stock up for Christmas.

The AGM and lectures are free of charge but if you require a meal after the lecture, it will cost £17.95 for a four-course banquet. Choice of menu to be made on the night from four starters, five main courses including vegetarian, choice of dessert from the sweet trolley plus coffee or tea. The cost of the meal is £17.95, payable on the night.

Overnight en-suite accommodation at the hotel is a very reasonable £26* per person, inclusive of full English breakfast.

If you wish to attend and require accommodation please indicate your requirements on the form below and return the completed form together with either **full payment of £26 or a deposit of £15 for the accommodation** plus an **A5 stamped addressed envelope for details of the programme, receipt and directions**. Please **make your cheque payable to 'The Great Barr'**.

If you wish to attend the AGM and lectures only, please complete and return the form together with an **A5 stamped addressed envelope for details of the programme and directions**.

One form is required per person, please photocopy as necessary.

Subject to a minimum of twenty residents; a small supplement may be charged.



REGISTRATION FORM FOR AGM & LECTURES IN THE MIDLANDS, 2- 3rd NOVEMBER 2002.

Please complete in BLOCK CAPITALS

Title: _____ Forename(s): _____ Surname: _____

Address: _____

Postcode: _____ Region Number: _____ Phone: _____

Personal Identifier: _____ Present course(s): _____

SATURDAY

SUNDAY

I wish to attend the AGM Lectures

Cadbury's World

I wish to book evening dinner (*payment of £17.95 made on the night to the hotel*) and/or overnight accommodation.

Please indicate Smoking Non-smoking and Single Double *Please tick your choice.*

I enclose a cheque payable to 'The Great Barr' for £26.00 (full payment for accommodation) or £15.00 (deposit for accommodation).

Signature: _____

Send completed form **WITH AN A5 SAE PLEASE** to:

Paul Everett, 36b, Griffiths Avenue, St. Marks, Cheltenham, Glos. GL51 7BL