



THE ROAD AHEAD

OUCS President Michael Gagan looks forward to the future of OU chemistry

Dear OUCS Member

I am writing my second President's letter just after returning from a most enjoyable AGM weekend in Birmingham, where I listened to two excellent lectures (as well as giving one myself), ate a very agreeable dinner with quality wines (included!), failed to identify the murderer in a murder mystery, and bought a 1 kg bar of Dairy Milk chocolate after a visit to Cadbury World. I am sure that all who attended are very appreciative of Carole Arnold's organising skills following this latest successful Society event.

One of my wishes for my term as President was to see the establishment of an OUCS Conference as a regular event on our calendar. The Geological Society holds an annual Symposium, which is always well attended, and attracts highly regarded geologists as lecturers. I think that OU chemistry students would be equally willing to participate in a well-organised event with a good programme of distinguished speakers. The OU Chemistry Department has many useful contacts, through consultants, external examiners, and course assessors - as well as some pretty good lecturers itself - and I feel sure that a strong team could be assembled. Extending the lecture programme at the AGM weekend by the addition of a 'President's Lecture' was

a start; I shall have to try to push this idea a little bit harder in 1998, before I hand over to Ruth Williams.

I was surprised to discover at the AGM that not many students were aware of the huge changes now beginning to take place in the OU Science Faculty, which will have a particularly significant impact on those students just starting their OU degree. The Faculty teaching programme is being reorganised so that by 2004 a completely new structure will be in place. The chief features are the restriction of each discipline to 60 points at second level and 60 points at third level, with the rest of the Faculty allowance being distributed between issues in science (developing from S280: Science Matters), and three strategic areas of scientific interest - Health Sciences, Environmental Sciences, and Space and Planetary Sciences.

The first question to ask is where does that leave chemistry? Biology is obviously associated with Health and Environment, and Earth Science clearly connects with Environment and Planets, sharing Environment with Biology and Space with Physics. Currently chemistry has 60 points of inorganic, 60 points of organic, and 30 points of physical, together with Our Chemical Environment (30) and NMR (30). Following the reduced chemistry content of S103 (no chirality, no quantitative aspects of equilibrium, for example) the first 180 points of our teaching programme will be 'boiled down' into 120, and the 4th level course will disappear. Perhaps some of the "...

and the life sciences" bit of S442, and the hygiene and medicine from ST240 will be picked up by Health (if Biology lets us in!); but the prospects for Environment (since we do not do any analytical chemistry) and Space (since the transition from 'Matter in the Universe' to 'Astronomy' left out much of the chemistry) look fairly grim. RSC recognition? What chance of that in the new millenium?

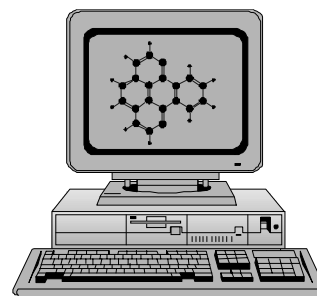
Another worrying trend is the move towards full 60 point courses at second level. Biology already has two in place - three if you include Health and Disease (U205). Physics and Earth Science are both well on the way to having 60-pointers by 2000. So what of those biology students who just took S246 - and still found Living Processes near impossible; or the geologists who wanted the inside story on ionic structures or radioactivity from S247, but none of that organic stuff? Shall we only be left with the two-thirds who do both our second levels? But not all of them do both together. Is 'S204', or whatever it will be called, really the best way to revive the flagging fortunes of the Department, now that 'students doing courses' is the only currency of survival?

So is the OU chemistry student (and then the OU Chemistry Department?) destined to join the Home Experiment Kit on the list of great Open University ideas that vanished into oblivion, as the millenium dawns. These are indeed 'interesting times'.

Michael Gagan

Into the Third Dimension

A review of WebLab Viewer by Frank Hollis

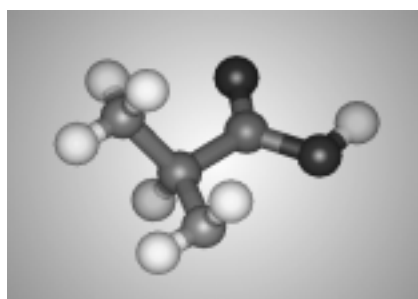


Many OUCS members have taken advantage of the offer of a free copy of ISIS/Draw (see box lower right for details). Although it is an excellent program for drawing line-structures for inserting into assignments, it is, practically, limited to two dimensions. Often viewing a molecule in 3D is the only way to appreciate it.

3D molecular modelling programs have traditionally been expensive or difficult to use, and often combined these features. Now Molecular Simulations Inc. have released their WebLab Viewer for free distribution.

One of the problems with 3D programs is getting the data in a suitable format. Often they require you to input three-dimensional coordinates for each atom. With WLW you can draw your molecule in ISIS/Draw, save it and load the .skc file straight into WLW. It automatically converts it into a 3D structure. (With the Win3 version it is necessary to export the structure from ISIS/Draw as a .mol file). You can also import data in many standard formats, including the Brookhaven Protein Data Bank which contains data on many thousands of molecules.

Once you've got your molecules into WLW there are numerous different display modes, including Ball and Stick and CPK Space-Filling, as shown in the pictures.



Ball and Stick model of L-alanine

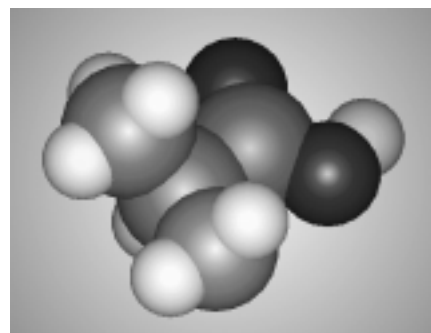
You can move the molecule around in three dimensions using rotate, translate and zoom tools. Portions of the molecule can be rotated about bonds using the Twist Torsion tool. The Spin option automatically rotates the molecule in the center of the screen, which is a good way to get to grips with the 3D structure.

The program can also create side-by-side stereo views of the molecule which, when printed, can be viewed with a special viewer (or with the naked eye, with practice).

It is also possible to display a solvent surface of the molecule which indicates the full extent of the molecule in its interactions.

The pictures shown here do not do the program justice as a lot of info is lost in the translation to black and white. All the colours in the program can be adjusted by the user.

So, how do you get a copy? You can enrol for S103 or S803. Both courses are including WLW on CD. Or you can download it from OUSA Chem Downloads on FirstClass. Or you can



Space-Filling model of L-alanine

get it from the MSI web page (<http://www.msi.com>). There are separate versions for Win3.x and Win95/NT. The former lacks some of the features of the latter.

Frank Hollis



Heme - showing just how complex models can be

ISIS/Draw - How to get your copy

For a copy of version 1.2 send a blank, **formatted**, high density (1.44MB) floppy to Frank (address on back page). Tutorial files in Adobe Acrobat format require a second disk, the Acrobat reader program is available on a third disk.

Version 2.1 is too large to fit on floppy disks. However if you have a Zip drive I can copy the program if you send me a disk. Alternatively, you can download it from the MDL web site (<http://www.mdli.com>).

Please make sure you enclose the correct number of disks and a **stamped**, addressed, envelope.

The Litmus Test

Interviewers - Sue Whitaker & Janet Smith



Professor Ray Jones.

Where did you go to school?

I went to St Albans School in my home town of St Albans, Hertfordshire. It was one of the old direct grant schools and I was always rather proud of being a scholarship boy and not having to pay any fees!

Did you go to university straight from school?

When I left school, it was a Christmas, since I had just completed my Cambridge entrance examinations. That left me nine months to fill before going to university, and through the mother of a school friend I found a temporary job for period at the Frythe, just outside Welwyn. In those days it was a Unilever site, and I was doing organic synthesis to make triglycerides and phospholipids. This Lab experience was a great help when I became an undergraduate, and I've been doing organic synthesis ever since!

Where do you work now?

Since October 1995 I have been the professor of organic chemistry at the Open University, based at Walton Hall, and in 1996 I took over as head of the chemistry department from Professor Frank Berry. It is a rather different job from my previous one at the University of Nottingham. There are lots of OU chemistry students (although we would like more, of course!) but they are not around on the campus, knocking on my door at in-

convenient times! On the other hand, I do enjoy summer schools (which I started tutoring way back in 1976) as a chance to meet our students. For the same reason I have remained an assistant lecturer in region 05. I can also see how some of our courses work at the coal face. The challenge of running the department is also very new and exciting, and keeps me very busy alongside the teaching and research.

What are your outside interests or hobbies?

My family would probably say that chemistry is my hobby as well as my job. I used to play hockey, but had to give it up through injury, so now I watch my sons play. I am very interested in computers too. A lot of the time, I just like to relax!

What type of books do you read for pleasure?

I read for entertainment, so crime novels and spy novels feature a lot. I also like humorous books, for instance the novels of David Lodge.

What is your favourite TV programme?

This is a difficult one! Comedies always go down well, like "Only Fools and Horses", and detective series such as "Inspector Morse" or "Dalziel and Pascoe" are usually a must. I also watch a lot of sport.

Why did you choose chemistry?

I was fascinated by chemistry since a succession of very good teachers at school. It just seemed like the best thing to do, making new substances and trying to understand how they were made. The practical work was fun, although I don't get as much chance to do any nowadays! Chemistry always seems to me like the ideal blend of logic and creativity.

What is your current project?

We research in three areas of organic chemistry, and heterocyclic chemistry plays a part in all of them. One project is to explore new ways of making nitrogen heterocyclic rings using cycloaddition and cyclization

reactions, ideally in an asymmetric synthesis. Another project is also using cycloaddition processes (1, 3-dipolar cycloadditions) to make a family of natural products that we call the heterocyclic tricarbonyl metabolites.

The third project is a cross between heterocyclic chemistry and the chemistry of novel amino acids, as we try to assemble pseudo peptides, molecules that mimic the action of natural peptides. You can see that pharmaceutical and agrochemical properties are an underlying motivation in all of our research.

What would you like to do next?

I don't look too far ahead! My current ambitions are to help maintain the success of the OU chemistry department, and to continue with my research. Three years ago I had no idea I would move to the OU, but then the opportunity came along, so I don't like to predict too much.

Where do you see your field going in the future?

Organic chemistry will continue to develop at the interfaces with biology and materials chemistry. More sophisticated multistep and multi-bond forming reactions will be discovered and control of stereochemistry will improve. There is a lot of effort to devise catalytic processes for academic and environmental reasons. I see chemistry remaining as a central and enabling science.

Who do you think should take the Litmus Test?

It's planned to make this a regular feature. Preferably with the same questions being put to various subjects.

We would like to know what questions you would like to put to whom?

Send you ideas (or, better still, completed interviews) to Frank Hollis.

Who's Who in OUCS

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Competition Results

Puzzle Time

Here are the answers to Ann Mander's puzzle:

- Al Keen had blue, polystyrene packaging.
- Chris Stallite had an orange, bakelite saucepan handle.
- Matt Erial had some red cotton thread.
- Ellie Ment had a yellow bag made from low-density polyethylene.
- Esther Bond had a purple nylon cup.
- Poly Styrene had a green polyester bottle.

Congratulations to all who got it right (Jane Wilding, Sue Whitaker, Hilary Snelling and Nigel Treweeke), but especially Suzi Forster of Carlisle - who's name was pulled from the hat. Suzi wins a book token.

Many thanks to Ann for devising the competition.

T-Shirt Competition

The competition was judged at the AGM. Lots of entries were received and, after some hard judging, it was decided to give first prize to Trevor Sumner for his Buckminsterfullerene parachute display team. Trevor will receive one of the first run of the new shirts.

Watch out for the winning designs at Summer School, Open Day at Walton Hall and other OUCS events.

OUCS PRESIDENTS

1994-1996 Jim Iley

1996-1998 Mike Gagan