



# SCOTTISH SCIENCE ISSUES

President: Prof Anne Glover, University of Aberdeen

Chair: Stuart Farmer, Robert Gordon's College, Aberdeen

## Dear Colleagues,

Last summer I spent a month in Australia and visited my former colleague, Stephen Brown, who now teaches physics, maths and electronics in a school in Melbourne. Stephen is the only physics teacher in the school where the uptake in physics at the equivalent of Higher and Advanced Higher is one small class in each year, despite the school having a roll of about 1000. It is quite a striking contrast compared to most schools in Scotland and got me thinking of why that might be.

In Scotland we have a strong tradition in the sciences and of the sciences being taught by specialist teachers from at least S3 onwards. At the Science Summit organised by the Government last May it was clear from the pupil contributions on the day that they appreciated being taught by knowledgeable teachers with an enthusiasm for their subject and that they could often tell when a teacher was teaching outwith their main specialist area.

Looking south of the border tells a similar story. In the last couple of decades there has been a trend towards general or combined sciences at GCSE, although this might now be starting to reverse. This has resulted in much science being taught by teachers working outside their main specialist area. This situation has been of great concern to the Institute of Physics and has resulted in a number of projects to support non-physicists teach physics, all with an acronym: SPT; PEP; SASP to name but three. Some of these projects have considerable English Government support and funding.

Getting the right balance teaching the sciences is not easy and it is difficult to obtain a consensus view, and of course thinking about science as only consisting of biology, chemistry and physics is rather simplistic. However, I think that the best balance is achieved by having a strong department where biologists, chemists and physicists all collaborate and support each other and build cross-curricular links between the sciences and beyond but retain specialist teaching from at least S2 or S3 upwards. The sciences out in the "real world" are progressing rapidly at the interdisciplinary boundaries as well as in more specialist areas and we must prepare our young people for life in such a world.

This is not the situation I found in Melbourne where Stephen has no input to the junior science courses which are mostly taught by biologists. Here in Scotland, at this time of change with CFE, it is important we do not throw the baby out with the bath water. By the time you read this the annual Science and the Parliament event will have occurred and ASE has prepared the following press release for the event:

As an MSP interested in improving Science Education we would urge you to pursue the following issues:

1. Let's ensure that the sciences receive the status within the curriculum they deserve. Leaders in government, business and industry often pronounce on the importance of science and technology education to the health and prosperity of our nation. The sciences should be given core status in the Scottish curriculum alongside literacy, numeracy and health and wellbeing.
2. Let's ensure all pupils continue to have an entitlement to study the sciences to age 16. Please argue to retain the opportunities for all pupils to study a breadth of science at least to the age of 16. Pupils should not be allowed to discontinue their science education at an earlier age. This should ensure both a scientifically literate public and a suitable foundation of science to allow further study in the sciences beyond age 16.
3. Please support curriculum developments by arguing for investment in science CPD, accommodation and apparatus. Science strategy funding made a significant start in the refurbishment of school science accommodation and apparatus and providing quality CPD for teachers of science. However, it was only a start. A refreshed curriculum requires refreshed facilities and refreshed, enthusiastic teachers. On-going funding is required for co-ordinated quality CPD for all teachers of science and technicians, including those outwith the central belt.

Stuart Farmer  
Chair, ASE Scotland

*The Association for Science Education Scotland: Promoting Excellence in Science Teaching and Learning*

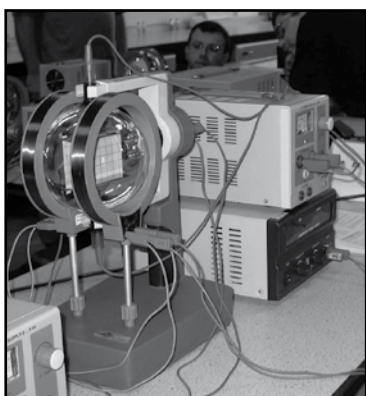
## ASE working for you

The ASE strapline is "Promoting Excellence in Science Teaching and Learning" but the old one was "Teachers and Technicians Helping Teachers Teach Science" and both are excellent descriptions of ASE Scotland events held so far this session.



In particular ASE Scotland has developed three new initiatives this autumn to support teachers of science. First, the ASE Scotland Primary Group has organised four CPD days to support primary science with a geographical spread of Inverness, Dunblane, Ayr and Lauder to try and make them accessible to all. These have been well received and have shown how science can be integrated into the CfE curriculum with other subjects.

Second, working with IOP and 3B Scientific, a series of workshops on teaching with Teltron tubes was organised at five venues: SSERC in Dunfermline, then Ayr, Aberdeen, Fortrose and Glasgow in the space of a week. These workshops were attended by over 100 teachers and feedback has been positive. This has also resulted in interest from other organisations in doing something similar in the future, so watch this space.



Third, and most ambitious of all, seminar sessions have been organised at the four CfE Day Conferences organised by the four ASE Scotland Sections in

Monifieth, Edinburgh, Aberdeen and Glasgow. These sessions are the starting point for a project to write teacher support material for CfE. ASE has decided that, in the CfE vacuum, teachers of science in Scotland deserve some support. The follow-up writing weekend has been booked for 19-20 Feb 2010 when 20 invited teachers will gather to take the ideas forward and with a bit of editorial work it is hoped the final product can be published before the start of next session.



In addition to all that there have been the usual twilight and evening events around the ASE Scotland Sections. For example, in Grampian Bob Ironside and Charles Buchan, both experienced PTs and SQA Verifiers, provided advice on AH Investigations and in Tayside an event was organised for student teachers at Dundee University with the support of many others including Sensation, Tech-Fest, RSC, IOP and SESEF, another good example of ASE working with others to promote excellence and support teachers.



ASE is a supportive community. If you want to get involved please come along to the meetings and if you want to help in the organisation of events then stand for election to a Section committee at one of the ABMs in May.

# Seeking New Horizons in Israel and Palestine

by Jimmy Maxwell

Carrying the skills gained over a career in science teaching into a very new situation isn't something I imagined myself doing even a few short months ago. I've gained a lot of experience and benefited from contact with colleagues, Association for Science Education conferences and publications and completed several Chartered Teacher modules. More importantly I've been in contact with a succession of pupils who are a constant reminder of our priorities and the purpose of all that we do in schools.

My new challenge - to get involved in a school which is working to make an impact on peace and reconciliation in Israel. Tabeetha School is a combined Primary and Secondary where pupils are taught in English. It has been run by the Church of Scotland for nearly a century and through changing times has adapted to the needs of the pupils and the community. Crucially it has developed to fulfil the need for reconciliation between the different groups in the Tel Aviv-Yafo municipality in Israel. The pupils come from a wide range of backgrounds; Arabs, Israelis and a range of expatriates; Muslims, Jews, Christians and a number of other religions (or none). These 330 pupils share learning, sport and other normal activities in a friendly and caring atmosphere, 'leaving the politics at the gate'.

As an active member of the Church of Scotland for some thirty years I was aware of Tabeetha and now I've been given this opportunity to spend five years teaching various science classes and taking a very full part in the school and its affairs. Much of the work is similar to what we all do in our own schools in Scotland. However a number of pupils speak English as their second, or even third, language and there are the other staff to get to know (who come from widely ranging backgrounds as well). Finally there is the ever present need to consider the situation where the "peace process" and the issues of occupation and terrorism are a big part of everyday life. Using UK (Cambridge and Edexcel) qualifications means that care has to be taken where many examples of everyday life are alien to pupils in the Eastern Mediterranean.

The move from a quiet cottage by the shore of the Moray Firth to the noisy and hot city of Jaffa is even more of a culture shock than having to learn Hebrew, at which I have made a tentative start. It makes me really appreciate that some of my pupils in Jaffa are finding difficulty with English and this obviously has an effect on their understanding in an English speaking curriculum.

The labs, one each for biology and chemistry, were refurbished with money raised in Scottish churches in

the early nineties but are in a 100 year old building. There is no technician support at all and no prep room area. Equipment and chemicals are limited. A number of teachers are involved in the teaching of science to the equivalent of our S1 & 2 who are not science graduates, there is even the likelihood that I'll have to teach some physics. These are all major challenges. I can envisage some panic emails to colleagues in Scotland about all of the stuff which wisnae in the O-Grade! I'm also hoping to undertake a certain amount of coordination of science teaching through the school, perhaps providing support and advice to the primary department and developing a continuity of scientific thinking through the curriculum. The "black box" publications have not had an impact in Israel although the senior management team are very interested in the ideas in 'Curriculum for Excellence'. There may be even more of a culture change required here than there currently is in Scottish schools.

In terms of taking on the Middle East Peace Process I'm only going to be playing a very small part. The effort going in to one small school is huge, and some may even challenge how effective it can be. The effect is one of small steps, of individuals meeting across cultural and political barriers, of friendships between pupils of every culture being extended into adult life. Indeed I believe that it's ultimately this kind of effort which will be key to solving the problems of a very troubled part of the world. It is a very great privilege to be involved and to have such encouragement from so many colleagues and friends across Scotland.

After four weeks in school I'm gradually getting to know pupils and becoming familiar with courses. I have a huge amount of electronic material from Invergordon (and from Scottish Schools Equipment Resource Centre) and the prospect of a developing relationship between the two schools. Churches in various places around Scotland are taking an interest in my work and many friends are supporting me with encouragement and enthusiasm. Professional contacts have been fantastic, especially SSERC who have been extremely interested and most helpful. I will certainly miss the regular input of the ASE Scotland conferences which are always such a lift to classroom teachers. Farewell and all good wishes as you go through the changes which are just starting to bite in your classrooms. I'll have a lot to learn when I come back.

Tabeetha School is an "Amuta" (registered charity) and is owned and administered by the Church of Scotland with help from other sources. It is located at 21 Yefet St, Jaffa, Israel for those who want to view online. ([www.tabeethaschool.com](http://www.tabeethaschool.com))

## Grampian

Saturday, 14 November 2009, 10:00-15:30  
**CfE Day Conference**  
 Robert Gordon's College, Schoolhill, Aberdeen

Tuesday, 23 February 2010, 17:00-19:30  
**Hands-on Science in the Classroom:**  
 with a focus on Forensic Science and  
 Renewable Energy  
 The Robert Gordon University, Aberdeen

Monday, 10 May 2010, 17:00-19:00  
**Institute of Medical Sciences: Translating  
 Science from Bed to Bedside and ABM**  
 Institute of Medical Sciences,  
 University of Aberdeen, Forresterhill

Tuesday, 15 June 2010, 19:00-21:00  
**Exam Review at Ellon Academy**

Secretary: Marie Rennie  
 marierennie2007@btinternet.com

## West of Scotland

Saturday, 5 December 2009, 10:00-15:00  
**CfE Day Conference**  
 with a focus on Biodiversity and Interdependence  
 McCance Building, University of Strathclyde

Thursday, 6 May, 2010  
**Members Night and ABM** venue to be confirmed

Contact:  
 Martin Armitage: martinarmitage@hotmail.com

## Scottish Science Education Conference 2010 Sustaining Science

5 - 6 March 2010 at Dunblane Hydro

# ASE Scotland Meeting Notices

## Tayside and Fife

Wednesday, 25 November 2009, 17:00 - 19:30  
**Advanced Higher: Sharing Ideas**  
 University of Abertay, Dundee

Saturday, 6 February 2010, 09:30 - 15:30  
**Primary Science**  
 Stanley Mills, Stanley, Perthshire

Wednesday, 5 May 2010, 18:00 - 20:00  
**Hydrogen City Tour and ABM**  
 Methil, Fife

Secretary: Pierluigi Carena plcarena@mac.com

## South East Scotland

Tuesday, 9 February 2010  
**Pub Quiz**  
 Myreside. 79 Myreside Road, Edinburgh

Monday, 17 May 2010, 17:30-19:30  
**The Science Education Community and ABM**  
 Moray House, Edinburgh

Saturday, 12 June 2010  
**"Share-a-thon": sharing teaching ideas**  
 Moray House, Edinburgh

Contact:  
 Heather Earnshaw h.earnshaw@fc.gwc.org.uk

## ASE Scotland Election

**N**ominations are now sought for the post of Chair-elect of ASE Scotland which will become vacant on 1st July 2010.

The person elected Chair-elect will then become Chair of ASE Scotland in July 2011 for one year followed by one year as Vice Chair.

Nominations should be supported by a 150 word statement and by two ASE Scotland members. The nomination forms and job descriptions can be obtained from Pauline Anderson, Secretary,

Macks Mill Cottage, Gordon, Berwickshire TD3 6JY.  
 (p.and@btinternet.com)

Should more than one nomination be received the appropriate details and ballot paper will be enclosed with the February 2010 Scottish Science Issues. Should only one nomination be received by the closing date of 11th December 2009 that person will be elected unopposed. Should no nominations be received then an election will take place at the ABM, Dunblane, 6 March 2010, with nominations from the floor.