

It'll be pyrite on the night

Tim Sprod assays the worth of British education's gold standard

A LEVELS provide the gold standard for British education. This is the slogan of all those who resist the changes to post-16 education that have been often talked about. The gold standard. The touchstone of all that is enduring; all that is of the highest value.

But there is another way of looking at the gold standard—the original gold standard, that is. For many years, currencies were backed by gold, their value linked to that of the precious metal. Not any more. Why? The answer lies in economic reality. The gold standard was too inflexible, too simple for the complexities of modern international economies. It was outmoded. It could no longer do the job for which it had been admirably suited in the past. So, too, it seems to me, with the A level system.

As a colonial teacher in Tasmania, on the outskirts of the civilised world, I have naturally long looked up to the Mother Country and its institutions. A levels, I believed, were the acme of secondary education, producing students so advanced and wise that they could attain an honours degree in a mere three years, compared with our colonial four (which includes a research thesis).

Imagine my joy at landing a position for a year in an English school, teaching A level geology. Now I could see the famous gold standard in operation and bring a few nuggets home with me. With two years of study and only three subjects to do, I was sure I would find students with an amazing depth of understanding of my subject.

Of course, this was not the case. English students are no better or worse on average than Australian students and the depth of understanding I found in my upper sixth students was no better than I was used to at home. In fact, it was worse.

However, they could rattle off the radiometric dates of obscure outcrops of igneous rock around the country. They could chant the names of the eras, periods and stages. They could reproduce the details of fossils I'd never heard of. They could write down verbatim dictionary definitions of terms I have never bothered to learn, having a dictionary of my own. In short, they knew a lot of unrelated facts about a wide range of the subdisciplines of geology.

I soon found the reason why. The much-vaunted A level exams ensured this. I was staggered to learn that over the whole two years, not a single piece of work they had done counted anything towards their final result. All hinged on three 3-hour exams. I could not believe that the students' futures rested entirely on such a flawed and unreliable assessment vehicle.

And what exams! They could usefully have carried the instruction "Write down as many obscure facts as you can in three hours". I am exaggerating, of course. Only

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Andrzej Krauze

one of the exams actually fits that entirely: the essay paper. A "structured questions" paper sought the occasional use of higher-order thinking, and the practical paper, among the frenzy of rote identification of fossils and rocks, required a reasonable amount of analysis and synthesis.

"Where is the place of field work in all this?" I wondered. To me, field work is the heart and soul of geological education. If students cannot describe and interpret an unknown road cutting with some degree of insight, then they don't deserve to have the subject on their certificates. Yet it would be perfectly possible to get through the course I taught in England without ever leaving the classroom. I discovered that students learnt the details of classic localities they had never

visited in order to handle the inevitable question, paraphrased as "Write all the obscure facts you can remember about a locality you have visited on a field trip".

I was delighted to receive, halfway through the year, a copy of the new geology syllabus. I read with pleasure that field work was going to count towards the final assessment—though only a derisory 15 per cent. The preamble made it clear that the course expected students to develop the whole range of cognitive abilities and there was even a weighting given to the emphasis to be laid on each type. Now, I thought, A levels will be able to escape their leaden-footed reliance on rote learning...

And then I saw the specimen exam papers supplied. They were no different from the previous ones; in fact, they were cut up from them. Don't they realise, I thought, that assessment runs a course? If you test for obscure fact recall, teachers will teach obscure fact recall. All the fine rhetoric about the balance of cognitive abilities would not prevent their withering away if they were not needed to pass the exams.

Looking around, I discovered that these weaknesses were not confined to geology, nor to a single examinations board. They existed in all the A level syllabuses I studied. I was pleased, of course, to realise that in Tasmania (as elsewhere in Australia) we had moved away from such flawed educational ideas long ago. We colonials could teach our erstwhile masters a thing or two.

Coincidentally, I was in England in the year that GCSE was first examined. Here, I found the sort of approach that was so sorely needed at A level: coursework, continuous assessment, an emphasis on a variety of higher-order abilities and so on. However, now I gather that, far from building into A level from this good start, the government is watering down GCSE itself.

I have not addressed the other major weakness I saw in A level: the incredibly narrowing effect of only being able to study three subjects. Much has been said about this elsewhere, so I won't pursue it here.

The gold standard, then. How does it hold up? Just as in the economic world, standards of the past need to be examined, and perhaps discarded, the gold standard of A level is long overdue for reassessment. A geologist could tell you that it actually consists of pyrite. □

Proceed with caution

Anne Cutler wants to have her conference without reading it

I WORK in an expanding field. One sign of this is that international conferences in my area are proliferating. By and large, conferences are a Good Thing. When a discipline is expanding rapidly there are lots of new people to meet, and conferences are the easiest way of catching up with them.

However, there's a price to be paid: inevitably there will be *Proceedings*. These are weighty, multi-volumed publications, because current practice in my field dictates that they contain a condensed version of every talk or poster presentation at the conference. These *Proceedings* are not a

Good Thing; in fact they're actively harmful in a number of ways.

First, the paper takes far too long to prepare, because camera-ready copy is required and the formatting rules grow more restrictive with every conference. Secondly, these mammoth productions are surely responsible for a good proportion of swingeing conference registration fees. Thirdly, the papers have to be written months in advance, which means that nobody at the conference will be exciting an audience with hot-off-the-press news. And finally there is the sheer mass, consuming forests in their production,

inflicting shoulder strain and backache on resentful conference delegates and filling up bookshelves with maddening rapidity.

At best, *Proceedings* have just one, rather dubious, advantage. It isn't that they are a quick way of reaching an audience, because no one ever reads them, either before the conference (they're never distributed till the conference opens), at the conference (there isn't time) or after the conference (too many other things piled up during one's absence). Nor is it that a *Proceedings* paper adds weight to a CV: where it matters, for jobs and promotion, published articles count only when they are in refereed journals. No, the only argument in their favour is that they can be cited, and hence can serve to establish priority to an idea, an observation, a result, or a technique. In a rapidly expanding field, priority can be vital.

Yet the publication which establishes priority is not the "real" publication. Real publications are those that satisfy the traditional requirements of the technical literature—among other things, they include enough methodological detail to enable others to replicate the work. There is no space in a *Proceedings* paper for more than the sketchiest methodological outline, so the replicability criterion cannot be satisfied. Also, of course, real publications are refereed. Conference proceedings are not refereed; at most, an abstract is subjected to preliminary scrutiny.

Clearly, no responsible scientist ought to be satisfied with reporting interesting work in conference *Proceedings*, where only a rough precis can be given. And, of course, few scientists will pass up the chance of getting a refereed publication onto the CV. This means that the real publications will still be written. But we all want to keep on attending conferences. This means that the conference proceedings will still be filled. In other words, work which first gets reported in a conference *Proceedings* will usually end up getting reported somewhere else too.

Now this sounds very like the biggest no-no of them all: duplicate publication. Professional associations are becoming increasingly neurotic about this. If editors of refereed journals take to rejecting work just on the grounds that it has already been reported in conference *Proceedings*, researchers in a field like mine will find themselves in a nice quandary: either they forgo the conference publication, which effectively means they cannot attend the conference, which in turn means they miss out on its advantages; or they forgo the proper publication of record—that's in nobody's interest, but it seems likely to happen if we don't find a way out.

But isn't there, in fact, a very simple way out? It seems clear that an abstract could do the job of establishing priority, as long as we make sure that what we want to establish priority about is clearly there in the abstract. In the interests of our shoulders and backs, our stress levels and our workloads, our bookshelves, our travel budgets and the environment—couldn't we please have the conference without the *Proceedings*? □

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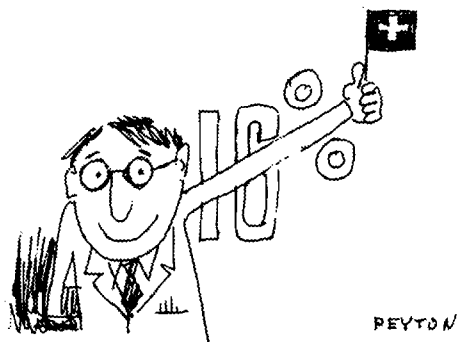
THISTLE DIARY

Just watch the Swiss

Comment from Westminster by Tam Dalyell

THE Swiss, I learnt at a lecture hosted by the Royal Society and the Foundation for Science and Technology, are a nation of people who get up early and wake up late. The speaker was Professor Ursprung, director of the Swiss Federal Institute of Technology, and his theme was "Science in Switzerland". Coolly, Ursprung went on to say that Switzerland has an annual growth in research funding of 16—yes, sixteen—per cent.

Even more surprising, Swiss politicians apparently do not contest the principle that science funding should grow faster than government funding in general (the consensus is aided by the fact that the Board of Technology often had the courage to reject good proposals). Neither are the politicians insular. Switzerland, said her foremost



scientist, wanted to contribute 4 per cent to the European Framework programme.

I was struck by Ursprung's clarity of purpose, as well as by the emphasis he laid on Switzerland's spending to help young scholars. It was a formidable exposition of a formidable programme, by a formidable scientist.

HOW much research is being done on organic farming? It has been suggested that the Ministry of Agriculture, Fisheries and Food should do more, but the minister, John Gummer, rebuts such criticism. In a letter to me, he writes:

"We have in fact increased our involvement in research work specifically devoted to organic agriculture. For the current year our budget has increased to £500 000 and will be £750 000 in 1992/93 and £1 million the year after. Included in work starting this year are two major new projects, one on conversion to organic cereal production and the other on conversion to organic beef and sheep production."

I somehow doubt that these sums will impress the critics.

I HEAR that the civil servants in the Department of Trade's Industrial Property Section are among those disappointed that there is not to be a Trade Marks Bill brought forward in the life of this parliament. The Chartered Institute of Patent Agents gives MPs three

reasons why they are desperate: existing legislation is half a century out of date; a European Directive—to be implemented this year by every other country in the Community—has to be brought into law by the end of the year (or the end of 1992 at the latest); and a new Trade Marks Act would allow Britain to join the Madrid Convention, so saving substantial sums of money for companies wishing to register trade marks internationally.

An amendment to the existing act simply will not do, says the institute. The prospect horrifies its members "as professionals who will have to operate any legislation". It adds that without a new act, British companies will be hampered in their attempts to compete with industry in the rest of the Community.

The Trade Marks Bill is of vital importance to British industry and commerce. It is even politically non-contentious. Yet because everything is geared to a general election, the British economy suffers.

THE Falklands are back in the Commons, more particularly the issue of the continental shelf, raised, if I may use the term, by the Conservative MP Michael Shersby. Ministers have now become deeply interested in the possibilities of finding oil in the South Atlantic, especially in the continental shelf off Patagonia and around the Falklands.

The moving spirit is the Spanish-speaking Foreign Office minister Tristan Garel-Jones. He has persuaded his boss, Douglas Hurd, to instruct the Governor of the Falklands Islands to take the necessary legislative measures to provide for the exercise of the Crown's rights over the seabed and the subsoil of the continental shelf.

The Commons will shortly consider an ordinance known as the Continental Shelf Bill 1991, which will be laid before the Legislative Council of the Falklands. When it comes in to force, it will allow seismic surveying to take place under licence in designated areas of the continental shelf.

All this is possible because the British and the Argentines are at last going to get together to explore the scope for cooperation. What was the Falklands War all about? It could so easily have been avoided.

