

# “Go back to your schools and pre

**The STELAR - Science and Technology through Educational Links with Amateur Radio - organisation has run a series of amateur radio courses for teachers during the school Easter holidays for several years now. Anthony Vinters describes this year's course, and how 14 teachers went from little or no knowledge of amateur radio to Intermediate licence status in just five days.**

**T**uesday 13 April 2004, sitting in the sunshine waiting for it to happen. Yes, it's that time of the year again: time for the STELAR Easter course for teachers. Like most events of this kind the planning for it started months ago.

As we sit there in the sun we see cars streaming past carrying hordes on their way to and from holiday. There is a temptation to think, why do we bother? Let's just examine why we *do* bother for a few moments. I have felt for a long time that radio amateurs have been sitting on a treasure house. They have at their fingertips not just the knowledge, but also a potential educational experience of enormous value to young people.

#### WHAT IS STELAR TRYING TO DO?

STELAR works within the educational establishment. We try to convince teachers and their mentors in university departments of education that radio communications have an enormous educational potential in our schools. Not only does this potential lie in areas that are obvious, such as physics, but also in the social development of the young person. Seeing a youngster deal with some piece of stubborn circuitry that refuses to work, or who is made to realise that it actually takes a lot of patience and effort before success is achieved, is a very valuable lesson. My own radio club at school has a record of turning some of our disaffected and difficult learners into quite reasonable human beings. In radio they have often had their first taste of real success. They can make something that works, they can talk to other people across the other side of the world, and they do begin to understand how the science works. To a teacher this is manna from heaven!

#### WHAT OF THE EASTER TEACHERS?

As we sit in the sun awaiting their arrival we wonder what sort of a

**Left: Assembling the crystal receiver kit from Ingo, DL1BLV.**

**Right: Brian, G8OSN, leads the course.**



bunch they will turn out to be. The first car appears swinging into the school courtyard, eventually decanting its driver who asks for the directions to the 'Radio Thing'. They are ushered to our Kingsford Room, a panelled meeting room where they sit in quiet and perhaps nervous contemplation of what they have let themselves in for. Gradually more arrive, and soon the room is full of teachers talking lustily of this and that. Soon all 14 are gathered.

Fortunately we have a venue for our course that is almost ideal. Rishworth School in the heart of the Pennines is almost everything we could wish for. With on-site accommodation, excellent catering and fine teaching laboratories in the beautiful Ryburn Valley we could not ask for better. On the STELAR course we pride ourselves in the quality of the catering. If the person coming on one of our courses has not put on several pounds by the time they leave us then we have failed!

Our courses have been held at Rishworth for a number of years,

and we have enjoyed the fullest cooperation and support from the headmaster, the bursar and the catering department as well as those that work in boarding in the school.

#### THE COURSE COMMENCES

Very soon all the jollity has been put aside and we are busy in the physics laboratory introducing basic ideas in electricity. Our lecturers, all volunteers, are chosen not only for their expertise in radio, but also for their communication skills. Being asked to perform in front of experienced teachers is not for the faint-hearted. They are quick to spot any failure in delivery! This year we were extremely fortunate to have the services of Alan Betts, G0HIQ; Richard Constantine, G3UGF; Murray Niman, G6JYB, and Brian Reay, G8OSN. Each one of these gentlemen has a deep knowledge of the subject, and is above all enthusiastic about how he teaches it. Their teaching skills are as good as their technical knowledge.

As a result of previous experience STELAR has worked with determination to provide teaching materials of

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a high standard. The RSGB initiative to ‘Train the Trainers’ has certainly been of help in this area. Also assisting to help things run smoothly were Roy Smith, G3NBI; Esde Tyler, G0AEC, and the secretary of STELAR, Mike Wade, G8OGO. Their constant help during practical sessions was most important in helping the participants get the most out of the course. I feel it important to mention especially the part played by Roy Smith, G3NBI, and Esde Tyler, G0AEC. Their time spent during the ‘on air’ parts of the course was invaluable. They both have a knack of being able to make newcomers to radio relax when they are transmitting and enjoy the experience.

Unfortunately this year Dr Ingo Goltz, DL1BLV, was unable to be with us. Ingo is a regular lecturer on the STELAR course. He has developed a series of relatively simple radio circuits that can be built by young people using simple components and easily available DIY products. These projects look very good when complete, and give young people a chance to make something that

works very well indeed. Ingo has proved an immensely popular lecturer with all the teachers who have been on our courses in recent years. I have a promise from him that he will certainly be with us at Easter 2005.

## PRACTICAL PROJECTS

It is true that in the world of education physicists are rare animals. The current shortage of physics graduates means that they usually end up doing GCSE, A/S and A2 level work, while non-specialists often teach physics further down the school. STELAR has made a brisk start on addressing the problem. The thinking is simple: the Foundation and Intermediate licences contain material on basic electricity and electronics. We take great care to teach these well, the idea being to bring a sense of confidence to the non-specialist: to show them that electricity is not the mystery that many find it. I am extremely pleased to report that on the course we had several biologists from our local university who are about to enter careers in the teaching profession. Every single one passed the Foundation and Intermediate examinations with flying colours.

There you have it: amateur radio playing a direct and vital role in addressing a current need in education. I return to my thesis: a study of radio communications is a treasure house of educational experiences, even for teachers!

Since Ingo could not be with us, I made enquiries several months ago if he would be prepared to make up kits of parts for our teachers to put together on the course. This he gladly did. About a week before the course started a large cardboard box arrived at Rishworth School from Germany. Inside were 20 of the most beautifully prepared kits, each one exquisitely presented in its own resealable plastic bag containing

everything needed. Nothing is left to chance, nothing untested. Everything fits perfectly and works first time. These little practical projects have become a hallmark of STELAR courses.

## BURNING THE MIDNIGHT OIL

Although the STELAR course is great fun, it is also very hard work. We push the course participants hard from Tuesday afternoon to the following Saturday lunchtime. A colleague of mine who lives on-site at the school asked me what on earth we were doing? The lights in the physics lab were still burning at 11.30pm most evenings.

Eventually Thursday morning arrived and the Foundation licence test. Everyone was up early doing last minute bits of revision. Standing at the front of the class there was a definite tension in the air as the packets of papers were opened. Not to do well or worse still to fail completely would be felt especially keenly by a teacher. After all, they are supposed to be the expert at exams!

As the last candidate left the exam room the task of marking began

Alan Betts, G0HIQ, on the air.



straight away. Each paper was double marked by independent examiners to ensure accuracy and fair play. To our great relief all had passed the first hurdle by a handsome margin. The teachers had all gathered in the school dining room for a well-earned cup of tea after the exam. We examiners filed in looking suitably solemn. It was announced that all had passed; they had at least now the certainty of leaving the course with a call sign. The relief felt by all of us was intense. We could now brace ourselves for the second hurdle, the Intermediate licence.

Work on this started immediately. Time was spent not only on theory but also getting to grips with issues like soldering, PL259 plugs, calibrating a VFO etc. I find these practical matters particularly interesting and worthwhile to teach. After a little training on how to solder, each of our teachers built a simple crystal receiver with its own amplifier from the kits so well prepared by DL1BLV. Very soon each person was rewarded with the sound of a broadcast station coming through the earpiece. It was interesting to hear from several of them that this was the first time they had soldered anything and it had worked! Clearly Ingo's careful preparation had reaped a harvest of success. On the STELAR courses we are conscious that it is vital to give all our participants a real sense of achievement and a taste of success.

That evening we all gathered at a local restaurant and had an excellent meal plus something to wash it down with. One or two of our number found the Timothy Taylor's local brew very much to their liking.

To their credit all were up early on Friday ready for the final day's play. Soldering continued, putting mains plugs on cable under the eagle eye of Alan Betts, G0HIQ, making transistor circuits and a myriad of other activities. That evening after dinner we all went to the physics lab for a final revision session. Out came the data projector. The questions were displayed on the screen for all to discuss and generally tear apart. To a group of teachers how the question is phrased and slanted is as great an interest as the actual answer. One of our number, in his exam for Intermediate level, actually wrote on the paper "Nice try", which caused a lot of amusement among the markers: the candidate had spotted a diode placed in the circuit the wrong way around and hadn't fallen into the carefully constructed trap!

#### "PREPARE FOR TRANSMISSION!"

The end of the course was now upon us. Saturday morning was the time set aside for the Intermediate licence examination. Once again tense faces and a distinct lack of banter. This was serious stuff!

Again we marked the final papers in a tense atmosphere, a lot was at stake. Professional pride, not failing



**Tim and Robert from Year 10 at the school studying their kit before assembly.**

in front of colleagues, not wanting to feel it had been a waste of time. All these crowded in on the teachers and made their task more difficult. When our work was complete, the last paper safely marked and all marks verified we went across to the now familiar dining room to announce the results. Richard, G3UGF, made a few helpful suggestions as to how we should tackle the announcement. He drew a political parallel that I thought most appropriate. The teachers were all assembled quietly talking. At our appearance silence descended, the air was electric. I began the announcement: "Go back to your schools and prepare for transmission!"

Every person had passed the course, a 100% pass rate at both Foundation and Intermediate levels. Again the rush of relief, the congratulations, the backslapping, hand shaking, laughing and an odd wet eye summed up eloquently what this course was about.

On Monday morning the room was filled with young faces. They had little idea of what had happened there previously, except two of them. Robert and Tim, two young men in Year 10 at the school who had worked alongside the teachers to get their tickets. The fact that they were at least as good as the teachers brought a smile of satisfaction to their faces. Their classmates had simply no idea!

#### IS THAT IT?

No, not by a long way. Brian, G8OSN, made sure that people kept

in touch. He swiftly set up a *Yahoo* group for the participants. This has been an enormous success and information has been flowing back and forth ever since the course. There has been a demand for the Advanced licence course to take place in the autumn. This we plan to do!

Like all worthwhile projects this one has its army of unseen people who make it happen. Through the columns of *RadCom* I would like to express my thanks to all the people in the RSGB that have worked so hard on a multiplicity of tasks to make sure everything went well. In particular Sylvia Manco, 2E1CYL, and her team at HQ who provided exam papers and looked after the administration so well. The RSGB has long been a great supporter of STELAR and I would like to thank them for the many ways in which they assist our efforts. Their mission to become involved in the educational world has not been without difficulties, but they share with us a vision that amateur radio has much to offer the young person growing up in the 21st century.

Ofcom has played a major role in our courses. Through their generosity in providing funds we have been able to provide free courses for teachers. This has been in line with our thinking in STELAR. Financial considerations should not stand in the way of the professional development of the teacher. It is a fact that without their interest STELAR would not be able to function. In particular Alan Betts, G0HIQ, has always been a keen supporter of our work, not just in his role in Ofcom but his presence on our courses shows a commitment that is outstanding.

Our lecturers Richard, G3UGF; Alan, G0HIQ; Murray, G6JYB, and Brian, G8OSN, have not only shown themselves to be excellent ambassadors for amateur radio, their teaching abilities and experience have made them all first rate lecturers. All our teachers commented on how well the course was delivered, and praised the excellence of the teaching. Personally I found this most gratifying.

My thoughts now turn to our next course, the planning has started and a list of those who are 'up for it' is in readiness. I hope the reason why we spend our holidays doing this is apparent but, if not, here is a short quotation: "Is there a course in the autumn? There is! Oh good, count me in". ♦