For the fourth year, Warwick Statistics has supported undergraduate students who volunteered to assist in Liskeard School and Community College, Cornwall, for four weeks in summer.

Many of us think of Cornwall in terms of its natural beauty. However, Cornwall is relatively remote and disadvantaged; it is a county with the lowest economic performance in England and Wales. Liskeard school has a decent record of getting students through A level, although both of the main primary feeder schools have struggled with poor performance. The Warwick student volunteers help to raise aspirations, and inspire enthusiasm for mathematics. They provide additional motivation or support to pupils from widening participation backgrounds.

The three students, Florence (second year statistics), Sarah (first year statistics) and Katrina, (psychology undergraduate) provided this report:

During our first week and a half at Liskeard School and Community College we spent our time with the year 6 Summer school pupils, which consisted of the lower ability students that will be moving to the school in September. This had the aim of a smoother transition into the secondary school, where the students spend two weeks in taster lessons, as well as trips to Mount Edgecumbe Country Park and the National Marine Aquarium in Plymouth. With the summer school, we were able to see various subject areas around the school, which was a good introduction to the experience by seeing how all areas of the school run. Furthermore, we took a day away from the summer school in our first week to join a year 9 trip to The Big Bang Fair at Exeter University, which showed the students fun applications of science.

For the remainder of the second week and most of the third week we observed and assisted in the year 7-10 maths lessons. This involved acting as a teaching assistant in the classroom, answering any questions the students had and keeping them on task. Moreover, we had the opportunity to take smaller groups of students out of the main classroom for more specialised tuition. This took the form of slowing down the ideas covered in class for the students that were finding it challenging, and on other occasions taking out the classes top achievers for an extension activity.

Another exciting opportunity we were given was to take the lead on the Junior Maths Team Challenge. This involved running three different maths activities with some year 7 pupils from the school and year 6 pupils from local primary schools. The following week we were then able to reflect on the team challenge, and adapt the activities to make them suitable for some more primary school students visiting the school.

During our last week in Cornwall we were able to work with some year 12’s. The students attended a university style Webinar each day, presented by Dr Richard Lissaman from The University of Warwick, about problem solving in different areas of maths. After which they tackled some advanced exercises with our assistance.

As part of the experience we enjoyed exploring the local area around Cornwall during the weekends and evenings. During the four weeks we visited many seaside towns and attractions such as The Eden Project and Pendennis Castle. We have all gained valuable teaching experiences at the school during our four weeks. Overall the project has been very worthwhile and we would highly recommend the Warwick in Cornwall Teaching Assistant Project.

Florence's experience in Cornwall

Warwick in Cornwall has been an excellent experience which has allowed me to put into practice the skills and patience required for a career in teaching. Throughout the experience I worked with children from year 5 up to year
12, seeing the different challenges each year group provides. It was especially interesting observing the varying ability levels within each year group, seeing how the students’ attitudes and learning techniques differ.

Not only has the experience provided valuable time in the classroom aimed at a career in education, it has also improved my listening and communicating skills by having to explain concepts I find intuitive in a simpler way. I particularly enjoyed working with year 12 on advanced problem solving exercises which lead to discussions about different areas of maths and different ways to approach problems.

While we were only placed with each class a few times, seeing the students develop their understanding made the role very enjoyable, and as a result I will be looking deeper into a career in teaching. Not only were the maths department staff brilliant teachers to observe, they made us feel very welcome in their school for four weeks. Another enjoyable part of the experience were the trips to the local tourist destinations. My favourite was a boat trip from Truro to Falmouth after which we explored the town of Falmouth and visited Pendennis Castle. I thoroughly enjoyed all aspects of the Warwick in Cornwall Teaching Assistant Project and would recommend the experience to anyone who would like to experience teaching.

Sarah’s experience in Cornwall

I strongly believe that teaching in Cornwall is one of the most incredible experiences I have ever had during this summer.

It is difficult to express the amount of inspiration and satisfaction that this project gave me. The small moments when a struggling student was willing to put more effort to understand, or a bright student who pushed themselves hard to understand more advanced concepts. This experience has offered me a great opportunity to train my patience with young people as well as enhance my communicational and team-working skills with my colleagues. Moreover, by leading the junior and primary school math challenges it has built up my confidence to speak in public. Further, as we were running different tasks within limited time, it improved not only my leadership but also organising ability and time control.

In conclusion, I am really appreciated to have taken part in this project. It has given me another complete view of English School and also a decent understanding about the career of teaching. In addition, it has provided me with beautiful memories which I will never forget!

Katrina’s experience in Cornwall

These 4 weeks have given me a valuable insight into what teaching is like in the Liskeard School and Community College and I believe it was a great opportunity to experience the local culture in Cornwall. It was certainly something different to the kind of lifestyle I am used to!

The most enjoyable activity for me was going on school trips with the year 6 pupils. I also believe school trips serve a good educational purpose.

For instance, exploring places outside the school allow students to actively learn in a different context other than inside a classroom.

Moreover, this enables me to see students in a different light, and I found that the more informal setting allowed for greater development of rapport with these students, especially on the transport to and from the venue.

Overall, I would strongly recommend the experience to other university students. As a psychology undergraduate, I initially thought the prospects of teaching maths to the students could be daunting. However, I was able to overcome this very quickly in the programme, and I would encourage students from other degree backgrounds (not just Maths) to apply because the experience is rewarding and the memories created are truly unforgettable.
Research in the good old days

(by Emeritus Professor Tony Lawrance)

When the announcement came to consider contributing to Statistically Speaking, I wondered if a little light history might be in order. I have had recent occasions to reflect on my own early efforts in the late 60’s and early 70’s, mainly at birthday, retirement and memorial meetings, mostly in honour of old statistical friends. The first two have been great fun of course, and the latter have also been surprisingly enjoyable, and would have been much enjoyed by the remembered subject too.

From a statistical research view, things were rather different in the olden times. There were very few research studentships or post-doctoral positions. Research groups were all but unheard of, at least in the mathematical areas – research was mainly an individual activity – although there were a number of notable statistics departments in various parts of the country; regrettably, there are far fewer today; it has been a disappointment during my career to see them diminishing. Departments were typically small, originally with just one professor and up to three or four lecturers. External interactions and collaborations were by post, with connections made at the very few UK conferences, such as the RSS annual conference or at RSS read paper meetings. In those days, read papers were allowed to have a few rough edges and controversial content. Excellent papers were sometimes declined for reading because they were judged by the committee and referees not to be sufficiently ‘discussable’, perhaps from being too technical or polished.

I would claim that history has justified this approach. The read paper meetings were often the highlights of research life. The galley proofs would come and a discussion piece prepared, or the paper was read on the train to London, with an unscripted discussion at the meeting and then written up, ‘in less than 400 words’, as the instruction still is today. Also, as is today, the discussions were printed with the paper, and were often very valuable. Sometimes they were rather forthright and robust, particularly when ideas of Bayesian inference were emerging, and sometimes witty, such as when Wally Smith noted that a particular issue had caused him ‘many sleepless afternoons’. After the meeting, visits to pubs and restaurants completed the evening, with more distant members taking the night trains home. I miss the frequency of these occasions nowadays.

Before the 70’s, going abroad was somewhat exceptional, and usually for an extended period, with teaching or other employment to cover the cost. Travel to America for conferences could include use of US military planes, although I never experienced this discomfort. Unimaginable, as it might seem now, in those early days you could have a pre-doctoral permanent track job, as I did. For instance, I got a salaried tutorial position (£450 pa) after an MSc and in another year an Assistant Lectureship. I then worked on my PhD for 4 years, mostly in the vacations and during pub-free evenings; study leave was unknown. Regrettfully, there were no advanced courses or research student conferences to attend. I did enjoy my PhD years with Frank Downton as my encouraging but hands-off supervisor. As for most of us at the time, research was a fairly independent activity, with limited rules and few regulations. There were no formal assessments, reviews, presentations, etc., just the final thesis viva. The exam was between candidate, external and internal examiners, no celebratory champagne afterwards, and could be held anywhere. I heard of at least one taking place in an airport lounge. In my early years, many established staff did little work during vacation periods. In spite of this having changed many years ago, it has been a continual battle to persuade friends and wider family that during vacations I am not on holiday. In my early days, we did not have RAEs, REFs or TQAs; ‘publish or perish’ had not taken hold. Subsequently, I have been in every one since they started, in 1986 for research and 1992 for teaching, each one being a twist on the last. The most recent twist to ‘impact’ would have been considered unthinkable, although there were many voluntary exceptions in our subject that would have scored high marks.

My own research topic was developing the general and particular theory of point processes in the time dimension, a simple Poisson process being the default – the need for spatial models had not then been perceived. One objective was to obtain explicit statistical results for particular models with dependent inter-event intervals that were experimentally based. My first thesis first drafts were written by hand and then typed up without the formulae by a department secretary. There were no personal typewriters and most academics could not type anyway. In my case, the final draft was quite special. There was one secretary who could use an exciting new typewriter which had two heavy
key boards, interchanged by a long handle at one side, one qwerty and one with Greek letters and a few mathematical symbols. We even got a carbon paper copy of the typescript, very useful since there were no copying machines then. The whole process had to be repeated if you found too many mistakes — you needed to have very cordial relations with the secretaries. Word processing and mathematical type setting were unimagined.

As for computing, in Algol or Fortran, a fine day was advantageous, since it was a long walk to the university computer with your precisely ordered and punched instruction cards. If lucky, and the machine did not chew the cards in processing, you might get the results in the next day or two. Older staff relied on hand calculating machines, such as the Addo Multo illustrated here – there is a jammed Multo in my Warwick room. My boss after moving to Birmingham University, the eminent statistician Henry Daniels, used one.

He also used a slide rule, also illustrated here. This was designed for quick multiplication and division, using a sliding log scale. Henry, as a party piece, would calculate a sum of squares with his, but cheated a little in the method. My first MSc student spent most of the summer writing Fortran code to perform multiple linear regression — there were no computer packages then.

I do of course remember my first publication, in the Journal of Applied Probability in 1970, a paper on a point process stochastic model for the firing of a neuron. I got various theoretical results, but completely ignored the possibility of collaborating with the experimental neurophysiologists in Holland who invented the model and were carrying out associated experimental work — I suppose the distance was too great…. How much better I could have written it today. Incidentally, I submitted other papers to JAP from this work. One was too long, so I cut it in two and re-submitted the bits sequentially — I was rather pleased when they eventually both appeared in the same year in the same journal. A further contrast with today concerns the preparation and submission of a paper. The typescript was submitted by post, and after acceptance would be set in metal at the printers - visit the Gregynog press to see an early example of this technology. Graphics were unusual, none in my early papers, and when included would be redrawn by professional artists or be of the key-board type. Editing a paper involved marking the proof with special symbols that the printer would interpret. No computers in sight and the notion of do-it-yourself paper preparation for publication had not emerged — it's much more trouble these days, but the result is so much better. One thing has not changed — the need to reconcile opposing views in referees' reports…

Other things we take for granted today are email and travel. In the late 60’s I began corresponding with an IBM statistician in New York by airmail letter, a very thin sheet of paper cleverly folded into the shape of an envelope with a stamp incorporated. It was too expensive for the University to pay the postage for proper paper and envelopes. When email did come along, it was first available in universities. You found a route and linked them with @ signs to get to your required destination … if they were connected. The present situation is a little easier. As for academic travel, it gradually became possible. There are not many jobs that give the opportunity of visiting, living and working in USA, Australia, Japan, India, Hong Kong,… but our research is an international activity, benefitting from personal interactions, and long may it remain so — facetime and skype is not that much fun.

PhDs and Post-Docs might like to give a thought to what changes there will be by 2042…. and to let me know in person or other way. But remember, to quote from the cartoon on my notice board… “Pity about old Ainsworth. Published and published, but perished all the same ”.