

How Wide is Your Bed?



*Twenty Years of
Stirling Summer
Schools
Mike Hay*

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¹ See Chapter 6

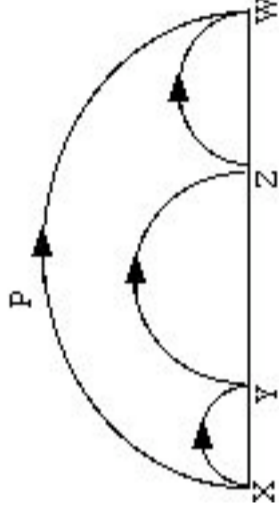
2. He was playing Monopoly! (Mono - polly)

3. Oddlands: Only words with double letters are "Iked"

10. If my next question is "Do you want a custard pie in the face, will you answer it in the same way as you answer this one?"

Appendix 3: Solutions

a) The Semicircles:



Recall: -Circumference of circle = πd , so circumference of semi-circle = $0.5\pi d$

so $XPW = 0.5\pi XW$;

$(X \rightarrow Y) + (Y \rightarrow Z) + (Z \rightarrow W) =$

$0.5\pi XY + 0.5\pi YZ + 0.5\pi ZW = 0.5\pi(XY + YZ + ZW) = 0.5\pi XW$ so both routes are the same.

Numbers, colours and vegetables:

For a 'normal' audience the usual results are:

3 or 7 (with usually a bias towards 7)

Red or Blue (by far the favourites, usually a fairly equal split)

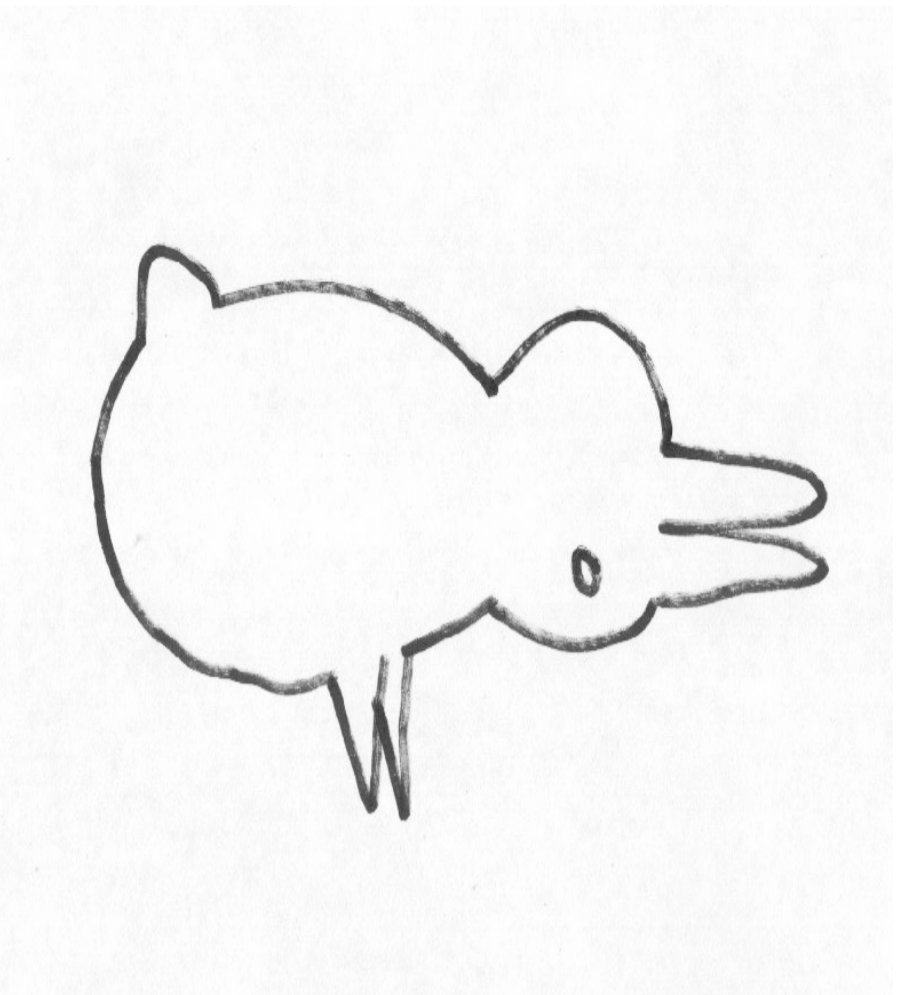
Carrots (the vast majority - why on earth should that be?)

(This exercise became known as the "Seven Blue Carrots!")

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Foreword

The English language is of course deficient in not having singular pronouns which embrace the female and male gender. In these Politically Correct days, and more importantly as a matter of fairness, it would be quite wrong to use male (or female) pronouns exclusively. Where a specific gender is not implied, I therefore have used “they” to represent “he/she” and “their” to represent “his/her”, which I think I read somewhere is now considered to be acceptable usage. If this grates on the purists, I apologise, but would like to make it clear that this is a deliberate decision rather than simply slovenly grammar!

Many people have contributed wittingly or unwittingly to this book, by providing me over the years with memories of events which have stuck in my mind, and which I feel deserve being committed to paper. I sincerely hope that any of my former colleagues who suspect that they recognise themselves at some point in the text will forgive the liberty I have taken - no names, no pack drill!

Appendix 2

Chez Angelique Solutions

1. The sequence 1,2,3,4,5,8,7,16,9,32 is of course two sequences interwoven, viz 1,3,5,7,9,... and 2,4,8,16,32,64.... The fact that it begins with the first 5 natural numbers is a happy coincidence!

Chapter 1

Why this book?

This is a personal report of a personal experience which has been very much part of my life over more than twenty years. Sadly, 1996 was the last Summer School to be held for the Open University Foundation Maths course, as a rewrite of the course was deemed to no longer necessitate the summer school experience. Two weeks spent for twenty years in one activity amounts to almost a year of my life; it is to acknowledge this, and to exorcise a lasting sense of bereavement that I feel moved to preserve some of the many entertaining, stimulating, thought-provoking and above all enjoyable moments from these years. If in doing so I succeed in striking a few pleasant chords for those of my colleagues or students who were summer school aficionados, or give some feeling of atmosphere to those who have not been privileged to be at one of these weeks, that will be an added bonus.

Chapter 2

Beginnings

For me, Summer School began on warm Saturday in June 1976, when I arrived at Andrew Stewart Hall (hereinafter referred to as ASH). It would be no exaggeration to say that, as I checked in, I was somewhat apprehensive - in fact it would be nearer the mark to acknowledge that I was fairly terrified. Those of us who have ever worked for the Open University will be aware that there is never a shortage of documentation, some of it even vaguely relevant, and since my offer of appointment as a Summer School Tutor, I had been regaled with piles of paper giving full details of all the presentations I assumed I would be expected to give. Since some of these were on areas of Mathematics about

Chapter 12 Elegy

Well, it's done! I enjoyed it, and I think laid a few ghosts! Like Proust⁴⁵, however, every so often a sound or a smell or a taste (chicken nuggets, for example!) will take me instantly back to Pathfoot, or ASH, or MacRobert or even Dumyat. Speeding along the M9 on occasion, I see Dumyat in the distance, and think back to those halcyon days - for they were! What now is the Pathfoot Lecture Theatre used for in the summer - Psychology (ye gods!). Does anyone now follow a graph out of the room? Where is Angelique? What happened to all the M101 songs? And above all..... *Why* do the basic OU Maths courses not need a summer school? The vandals came, looked, decided and destroyed - on their heads may the implications fall for the OU mathematicians of the future!

But, in the spirit of summer school, let us be positive. Dumyat remains, mathematics remains, the OU remains, country dancing remains, and I have no doubt that there are still many people, tutors and students alike, who look back with enormous affection on their time at M101 Summer School at Stirling. If you are one of these, this book was for you - I hope you enjoyed it.

Mike Hay
Penicuik
July 1998

⁴⁵ "A la Recherche du Temps Perdu"

achieved a certain personality, and since this was where all the group work sessions took place, it was customary for tutors to ask each other after a day or two, for example, “What’s D3 like?”. The reply was usually “I’ve been there - a nice lot”, but on occasion the opportunity would be taken to alert tutors to students in difficulties, either mathematically, or in terms of their integration (no pun intended) into the rest of the group. Once identified, efforts were usually made to address any perceived difficulty at an early stage. Tutors “rotated round” the badge rooms (not just an effect produced by the beer), so that no luckless group would be stuck with me all week - I was always at great pains to explain this in my first badge room each week.

Scottish Country Dancing

This was not strictly speaking a purely M101 activity, although it began many years back in the Pathfoot Coffee Lounge, when a few earnest enthusiasts spent an evening trying to do the dances properly. Gradually it took off in Pathfoot, being advertised before presentations with the slogan “Lack of experience is a positive advantage” (quite true in my experience - the only problems were caused by those students who thought they knew how to do the dances properly), and was gradually infiltrated by Social Science and Arts students. With the increasing numbers, Pathfoot was proving rather inadequate in terms of space, so with the usual OU inspiration for administration, it was transferred to the Robbins Disco Room in the MacRobert Centre, which was not only inadequate in terms of space but had a number of lethal pillars in the middle of the dance floor. However, here it stayed, and did become for many of us one of the high spots of the week, being more of an Icebreaker than the Icebreaker itself; in fact we often wondered whether country dancing on the *Saturday* evening might have been worth a try, but probably wiser counsels prevailed.

Building changes One of the excitements of returning to Stirling each year, apart from having a look at the Tutor List to see who one was working with, was to see what had happened to the buildings in the intervening year. In most cases the changes were relatively small or didn’t affect us, but we did suffer a jolt to find that the long wide corridor leading to the Refectory in Pathfoot had been partially converted into offices, leaving an unimpressive corridor without any of the same ambience... however, that’s progress; who can afford to have all that space dedicated to a *corridor*?

which my previously acquired knowledge was somewhat hazy, my mind was at this point full of potentially disastrous inadequate performances in front of a less than sympathetic audiences. I would have happily been anywhere else, even in the dentist’s chair.

The next few hours did little to calm my fears. After an hour or two trying to work out how to lock my door, I arrived as suggested at a large room at the MacRobert Centre for an “introductory drink” and I was somewhat surprised to find the room full of other tutors and alcohol in roughly equal proportions. It was also clear from the state of the tutors and the state of the alcohol that “an” introductory drink was not quite what most had in mind. It was also apparent that no money was changing hands and that the OU’s “Hospitality Allowance” (these were the seventies, remember) was footing the bill. Mindful of the need to keep my wits about me, I accepted with some reluctance a half-pint of lager, and desperately set about finding someone in the crowd who was as apprehensive as I was. My repeated question “Have you been to summer school before?” failed totally to find any other novices, and it seemed clear that I was among a group with a frightening amount of experience.

At that point I came upon Fred, an impressive character, full of self-confidence. His words were an attempt at reassurance: “Mike, the aim of the summer school is to enjoy yourself. Make sure you do!” I wasn’t too sure what to make of this - idealistically, I thought we were there to help the students, and this apparent disregard for their interests had me more than a little wrong-footed. (It turned out in fact that Fred was not only a superb lecturer, but also had a real empathy with students, and would happily spend many hours supporting and helping them).

Lunch was followed by the briefing session. Given that everyone else in the team seemed to know everything, the session was short, and to me was not reassuring. However, it began to dawn on me that there was a pecking-order for the full sessions in the lecture theatre, and that wet-behind-the-ears tutors like me would not be let loose on such an enterprise, but only have to take small-group sessions. That was the point at which I began to feel that it might just be possible for me to survive the week.

During this time, various other individuals began to come into view; these I assumed must be the students, with whom I was going to have to relate, communicate, and hopefully teach something or other (I wasn't sure yet what). An introductory briefing meeting in the lecture theatre obliged me to do no more than stand up with my colleagues and look intelligent and confident - neither of these were qualities I felt I possessed.

After dinner, things began in earnest. The "set book" for the Maths Foundation Course (M100 at that time) was Polya's "How to solve it", and the first session was to be a group problem-solving exercise involving the well-known problem of the number of areas formed by n intersecting lines, extended to n intersecting planes. There were some impediments to my success in this venture: a) I didn't know the answer b) I wasn't at all sure that I understood the question c) All the other tutors appeared to have mastered both a) and b), and d) I had little hope that any of my group of students would know what to do either.

My expressed fears in this area were dismissed by the Course Director with a wave of the hand and a comment to the effect that "it's much better if you don't know what to do; the students can follow your problem-solving processes better". (This was my one point of disagreement with OU philosophy throughout my summer school career - I did not, and still do not, believe that the interests of the students are best served by the fuddled machinations of tutors who don't know what they're doing).

To cut a long story short, my fears were realised. I talked a lot, wrote a lot on the blackboard, came out in hot and cold sweats, and at the end of the hour neither I nor the students were any the wiser as to a) or b) above. Although some of the group were kind enough to say that they enjoyed the session, I left the room (D1 in Pathfoot for those who know it - the one which for some unaccountable reason has a harpsichord in it) and set about looking for a railway timetable of trains back to Edinburgh. Then I remembered that there was still another session to go that evening, dealing with the dreaded unit on "Morphisms". It seemed unacceptably unprofessional to leave the students in the lurch, even if I was a poor substitute for the lurch, so I girded up what was left of my loins and headed for H1 (later to be the Aquaculture supremo's office, some may recall).

Two weeks or one week??

As I mentioned earlier, at first I thought that one week of summer school would be more than adequate; my "conversion" to two weeks came some time in the early eighties, when I had just arrived back from Stirling after a most successful and enjoyable week; on the Saturday evening was enjoying a chance to watch the telly and was sitting with a can of beer in my hand (*plus ça change...*), when the phone rang. It was the following week's Course Director with a request to fill in as tutor for a last minute call-off. So, forty-five minutes later (the M9 was quiet) I was back at summer school. After that I never looked back and applied for, and was always offered, two weeks as a matter of course!

Football matches

More a feature of the early years, it was customary for the students to challenge the tutors to a football match on the hard surface near the Gannochy Sports Centre. I only remember this being taken seriously on one occasion (when the students won). Generally the "rules" were something like:

1. Both genders could play.
2. Ladies could pick up the ball and run with it.
3. Gentlemen could pick up ladies and run with them, but only when the lady was carrying the ball.
4. There were two simultaneous referees, one from the tutors (usually the Course Director) and one from the students. Both had whistles - which tended to be a trifle confusing.
5. The game continued until the tutors (who always pulled rank and were allowed to cheat) won.

Moving on quickly to...

Discos

Given my previously expressed views on these: we move on quickly to.....

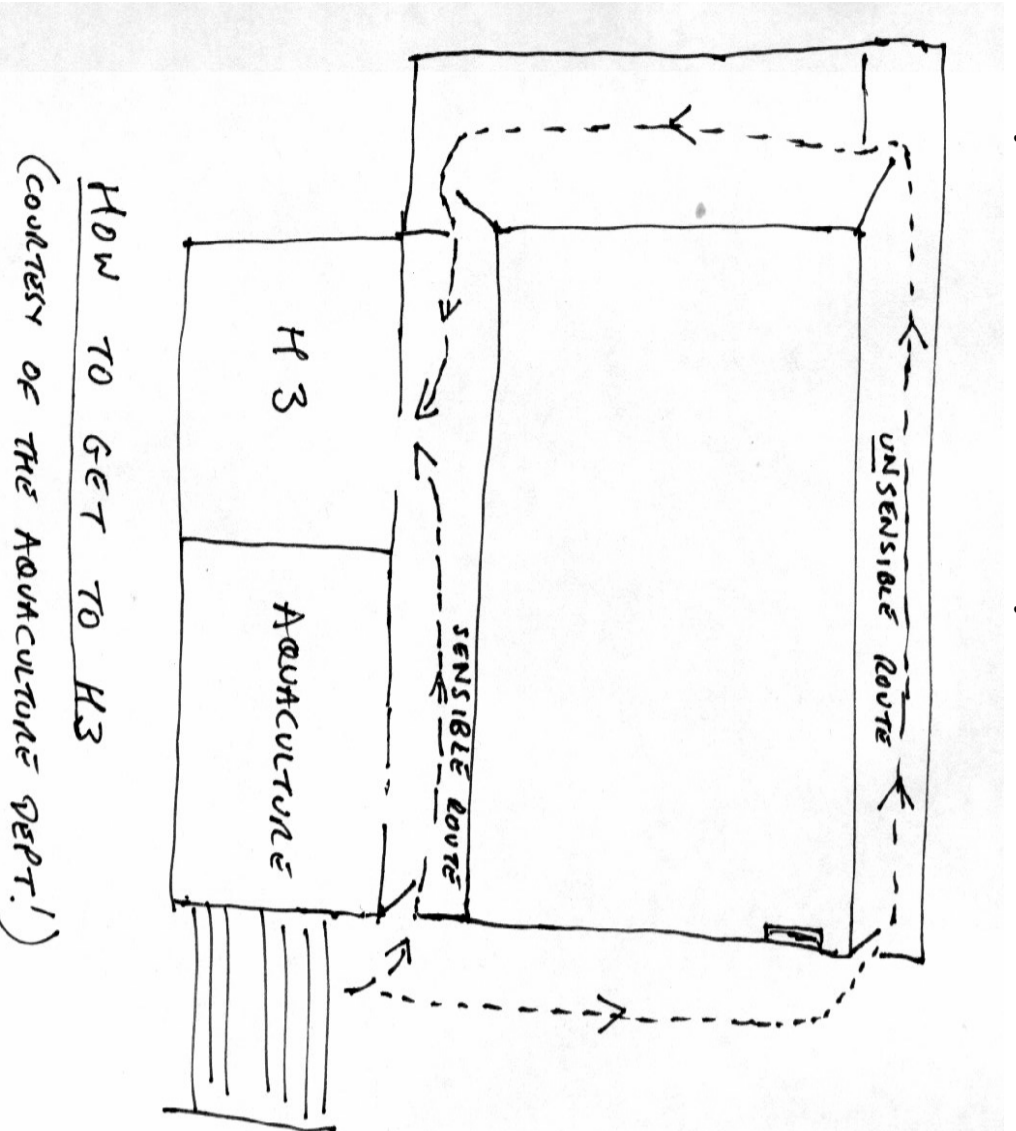
Badge rooms

These were to summer school what register classes are to day-schools - so-called because the number of a student's badge room was written on their badge when they registered. By the end of the week, or often earlier, each badge room had

staff, who as a rule were most helpful, but the annoyance caused by what appeared to be petty dictatorship was out of all proportion to the issue. But it takes all sorts....

The Money

We actually got paid for our efforts. I would not want to speak for the tutor body as a whole, but I do know from a number of discussions over the years that such was the enjoyment and satisfaction, not to mention a sense of privilege, of being at summer school, that, as I mentioned earlier, I was not alone in feeling that I would have happily been a tutor at Stirling without any significant financial reward. I have to say however that we did not fall over ourselves in the rush to convey this view to the OU hierarchy!



Embarking on a review of Unit 3, I was aware that this was crunch time. Students as a breed are not a forgiving bunch, and another fiasco would set the seal on my lack of credibility once and for all. It was at this point that a miracle occurred. As time progressed, I began to realise that not only was the audience receptive, but actually seemed to welcome, and better still understand, what I was saying. The hour passed amazingly quickly, and I was quite devastated to receive an unsolicited round of applause as I concluded. I can still recall the words of Roger, a very bright and cheerful individual: “That was tremendous - I understand it all now. Thanks so much!”

Now, it is not good form to relay such compliments to a wider audience, and although modesty has never been a quality of mine, I quote the above only as the catalyst which moved me in seconds from the depths of despair to the heights of euphoria, and enabled me to continue the week and indeed my entire summer school career. In fact, looking back, it was not that great a session; what I realised as the week progressed that M100 was such a difficult course, that *anything* one said was likely to make things clearer, since it was impossible for many students to be *more* lost than they were after reading the units! Also, because this unit was early on in the course, I had spent some considerable time mastering it, and perhaps that did mean that I was able to give them at least some idea of what was going on. (A standing joke about M100 was that if you failed it, you could get a compensatory first-class honours degree in Mathematics as a consolation prize! More of this later) It also became clear that the standard of tutor was, to say the least, variable, and that a number of full time staff who were there under *force majeure* from the OU were not always as committed as the students would have liked.

The rest of the week passed in a bit of a blur, not focussed much by the consumption of alcohol (not that alcohol was not drunk - it just didn't help the focussing) Four other memories remain: the walk up Dumyat², the final tutors' meal at the Sheriffmuir Inn (the one with Hercules the Bear³), “Chez Angeliq^{ue}” and a session on “Integration by Substitution”

² The hill beside Stirling University

³ Not there any more (the bear, not the Inn)

The first three, being hardy annuals in the summer school scene, will be dealt with in later chapters, but I'll expand a little on the last one, to give a flavour of the impediments put in the way of students at that time. To the non-mathematical reader, I apologise - there won't be much maths in the story, but now and again I won't be able to avoid it. Suffice it to say that some of the M100 units made a very good attempt at making essentially difficult concepts totally incomprehensible. For the mathematician, functional notation was all the rage, which led to all integrals being expressed in a convoluted and (to many people) unhelpful way. Incidentally, M100 was the only course I have ever found which taught integration first, and then introduced differentiation as the inverse of integration!

So $\int x(x^2 + 1)^3 dx$ would be written (I think) as $\int(x \rightarrow x)^\circ(x \rightarrow x^3)^\circ(x \rightarrow x^2 + 1)$ or something like that, and all the substitution operations were done using the same sort of notation. To most normal individuals, and to others like myself who for years had "substituted for dx" without turning a hair, this approach did not commend itself. So, embarking on the session, still in a reasonable state of euphoria, I abandoned the OU method (or more accurately paid lip-service to it to avoid being sent home), and taught the old-fashioned straight-forward approach which had served me well. It is one of the joys of teaching to see metaphorical clouds being lifted, and on that occasion it was clear that a peasouper had become an almost cloudless sky for many of the audience. Why do mathematicians sometimes delight in finding a clever but unhelpful way to present their work?

In those days, I only applied for one week's school, on the basis that I felt that it was good to leave when wanting more. This situation prevailed for a number of years, until it changed almost by accident, as I'll recount in due course. So, returning after my week's experience, I realised that a) I had greatly enjoyed it, b) students were great people and I had made many friends c) I perhaps had something to offer as a tutor and d) it was a great privilege to take part. (This latter feeling never left me throughout my summer school career - I was one of many who would have happily gone to summer school whether paid or not!) It was a very intensive week, particularly in those early days when the students were desperate to get some support with the many obscure parts of the course,

school tutors. This took the form of a "report" for each tutor, completed in the main by the Course Director, and countersigned, with further comment if desired, by the School Director (the system continues of course in present OU summer schools). There was always an air of mystique and uncertainty associated with these forms - particularly until the early 80s, until which time these, incredibly, were completely confidential, the tutor having no knowledge whatsoever of what had been written! This meant that every year tutors faced the possibility of not being reappointed and having no way of finding out whether this was due to unsatisfactory performance, or simply over-subscription.

Even when the system became more open, it was still regarded with a bit of suspicion; appraisal of any sort is unlikely to be totally stress-free, and many of the Course Directors were understandably feeling their way in this area. It is also hard to be involved in an appraisal of someone that you possibly only met a few days ago.

On the other hand, it was essential to the success of the summer school, that the few tutors whose performance was clearly unsatisfactory should have the matter addressed, and in some ways the OU was remarkably forward looking in introducing the system when it did.

Tutors also indulged frequently (and genuinely) in self-assessment, and would embark on a saga of soul-searching if they felt that something hadn't gone as well as it might have. They were in fact often their own severest critics (a mark of real professionalism in my view) - the most memorable was the comment of a tutor, new to summer school, who was asked how their first session had gone: "It was totally unsatisfactory in every possible way!". This tutor never looked back and became one of the most popular and appreciated of the tutor teams.

The Aquaculture Diversion

As one of the crazier if minor things that we experienced, the refusal of the Stirling University's Aquaculture Department to allow OU students to use the corridor which led directly to H3 must be worthy of note. Students and tutors were therefore obliged to make a considerable diversion (more than three sides of a square - see diagram) to reach a room which was literally 15 feet away. It was about the only example of lack of cooperation from Stirling University

occasion be a particular problem for some of the tutors of the fair sex engaged with a potentially amorous male, but there were also a few occasions (of the “will they ever stop talking?” variety) when the gentlemen also felt we could do with support. On becoming aware of this signal (never to be divulged till the end of time!) another tutor would come up to the one in difficulties, tell them there was an urgent message in another part of the building, and take over from the escapee. I would like to think that this was always done completely unobtrusively, and that the student was unaware of these machinations - the aim was never to offend, but simply to defuse what had the potential to be an awkward situation for both parties.

Technique Bashing

I can't trace the quotation, but it's a well-known one, that “lecturing is the process whereby the contents of the lecturer's notebook are transferred to the student's notebook, without passing through the minds of either party”. Technique Bashing sessions, held just before lunchtime, were an attempt, successful in my view, to address this concern. The tutor worked through a number of problems on a particular topic, thinking aloud, and there was a strong embargo on students taking any notes (although inevitably some of them still did, in spite of the notes being available to copy up afterwards). It was a good situation for making valid teaching points, and was generally appreciated by the audience. For the presenter, it was generally straightforward for those of us who could write and speak at the same time; however, because of the nature of the exercise, pre-prepared OHP acetates were not appropriate - everything was written at the time. So, despite having (if the tutor had any sense) all the solutions worked out in detail, it was still possible to get in a tangle, if one trusted to one's innate mathematical ability rather than simply copying from the script. Generally, though, this was a pleasantly productive half-hour before lunch. In the early days of M101, tutors would watch all these sessions religiously; latterly the lure of a glass of wine in the tutors' room, followed by an early lunch proved too much for all but the most conscientious of us.⁴⁴

Tutor assessment

Believe it or not, there was actually some form of Quality Control for summer

and it was very usual to talk maths at lunchtime, teatime and well into the evening, as well as sometimes over breakfast.

If I have lingered too long on the beginning, it is because from that experience came the will to repeat it. Had it not been for the success of that week, in which I was supported greatly by all my more experienced colleagues, I would have nothing more to write, and I would have been denied nineteen more stimulating and most enjoyable summers.

⁴⁴ and the Course Director, who was obliged to watch all lecture theatre performances to enable him/her to write tutors' reports

Chapter 3

Chez Angélique

It may seem strange that an after-hours activity such as “Chez Angélique” should appear so early in an account of what was after all intended to be an academic experience. To follow this line of reasoning however would be to miss the real crux of the summer school experience. But, as Bertie Wooster⁴ would say at the beginning of his stories, I’ve gone off the rails. What was Chez Angélique?

In the early days of M100 Summer School, an idea developed, or perhaps just happened, that it would be good to continue the problem solving aspects of summer school into the late evening (the main problem to solve being of course how to get a pint after 10 o’clock - remember the old Scottish licensing hours?). So a group of varying size met, sometimes every evening, in a number of venues after the pubs shut, but most often in the downstairs coffee bar in ASH. In this environment, fighting to be heard above inebriated and raucous conversation, brave tutors regaled even braver students with the “Forty Faithless Wives”, elastic ropes attached from Pathfoot to the Wallace monument, worms eating through cubes of cheese, and a multitude of other problems - some difficult, some humorous and some downright rude. This latter category were presented most effectively by tutors who also had been sampling the gifts of Bacchus, and in fact it became a *sine qua non* with most tutors not to consider taking part in Chez A in anything other than a “merry” state.

To those of us who were relatively new to the proceedings, this was a most stimulating time. Although some of the problems were not new to us, many were, including the overnight problem, which it became a point of honour for new tutors to solve before the next morning. These sessions often lasted till 2 or 3 in the morning (we were all young then), and many was the time I headed off to my room, fortified by coffee and alcohol in roughly equal proportions (the “kerry-oot” was de rigueur) to solve the latest puzzle.

⁴ The Jeeves stories, by PG Wodehouse

Chapter 11 Miscellany

This chapter is a sort of “potpourri” of all the things I probably ought to have put in earlier, but forgot about until now, beginning with:

Surgeries

These were opportunities for students to discuss with a tutor any topic (although mathematical ones were preferred!). They took place in the lounge area beside the Porter’s Box in ASH (very occasionally in the “terminal room” - see above), and no appointment was necessary or expected. Essentially the two or three tutors who were on surgery duty sat, or almost lay, on the so-called easy chairs, until accosted by a student. Requests could vary enormously from the student who quite unashamedly expected the tutor to do the current TMA for him (we didn’t), the student who had a very specific and sometimes searching question about a particular topic in the course (we weren’t too keen on these either), and the student who would chill the bones with an innocent-sounding request like “Tell me all about calculus”! (looks like a long evening). There were also the students who just felt like a chat, and those who tried to cover up their own lack of knowledge by speaking at length, and generally loudly, about something irrelevant. In fact, however, most of us actually enjoyed surgeries, because generally it was an opportunity to meet a lot of very pleasant people informally, and do some successful face-to-face teaching. If nobody turned up, we could, and did, chat to each other.

One or two tutors were so enthusiastic about surgeries (or perhaps so unenthusiastic about other sessions like presentations) that they would offer to staff most if not all of them; these volunteers tended over the week to acquire the title of “Surgeon Mike”, or whatever their first name was. The line “I need surgery; are you a surgeon?” must have been funny the first time it was said by a student, but tended to pall a bit after the nth repetition.

There was in fact an agreed sign that tutors used on the odd occasion when a student was becoming difficult to disengage from. This situation could on

There were sometimes lecture theatre sessions specifically devoted to computing (in fact at one stage I seem to remember they were called P8 and P9). These were held on the Monday and Tuesday evenings, were generally well-attended, reasonably informal and fun. It was certainly a situation where clarity of exposition was essential, and when present was appreciated, and I always found these evenings enjoyable. These were however superseded by group sessions, which I personally found quite hard to manage. The argument raged throughout the latter years of summer school - was it better to have "mixed-ability" or "streamed" groupings. I don't believe that the argument was ever satisfactorily resolved, because it actually depended on the individuals. It was possible to have a group of three gathered round a computer, where the one experienced member of the group acted as a very effective tutor. On the other hand, a "know-all" type of individual could do untold damage to morale, and in some cases prevent any of the other students touching the keyboard in the entire evening! Sometimes the approach worked for me, and sometimes it didn't - and it seemed impossible to predict in advance.

The aim of computing in the week (or at least as the students saw it) was to complete the computing TMA⁴³; this was generally achieved by everyone who gave it any sort of serious attempt, although how much was finally the work of the student, and how much that of the tutor is perhaps best left unexplored!

(One of the amazing things about summer school was the extent to which we could all exist for two weeks with insignificant sleep, even if total collapse followed on the return home. I could survive reasonably happily by going to bed at 3am and being up again at 7am. Now, sadly, that lifestyle is not in the frame!)

A worse place to perform than the ASH coffee bar could not be imagined. The television room at one end, in which there was always just one person, determined to see his or her favourite programme, in spite of the hordes of people jockeying for position, was complemented by the coffee bar at the other end, at which a number of individuals carried out interminable, loud and inevitably inebriated conversations at the top of their voices. Given too that there was only an area of about four square feet (none of this metric nonsense!) from which the "performer" could be seen, and probably heard, the omens were far from good.

And yet, and yet.... Somehow, the thing worked, and there was a "je ne sais quoi" about the setup which was never really bettered in all the other locations we tried. In those earlier days as well, the "show" split clearly into two parts: up until about midnight, survival was the aim, and deep and extended thinking was not really a starter - anything that could be turned into an innuendo of a vaguely sexual nature was seized upon by members of the audience, and the quality of a tutor's performance was judged by his/her success in dealing with such attempted witticisms. But after midnight, and sometimes lasting until 2 or 3 in the morning, those who remained were regaled with some entertaining, stimulating, and very often hard, problems. Some will remember the man whose house number was between 1 and 1000, colouring a plane in red, blue and green dots, three men with red and blue cards on their foreheads, the previously-mentioned "Forty Faithless Wives", maggots chewing through cubes of cheese, and much, much more. For a flavour of those heady early mornings, the reader is referred to "Chez Angélique - the bumper late-night book" by Jaworski et al.⁵ (John Jaworski and his associates, incidentally, were the prime movers of "Chez Angélique" experience, and much of the success and unforgettable atmosphere of M100/101 Summer Schools was in no small part due to them).

⁴³ Tutor Marked Assignment - the standard OU continuous assessment method

⁵ Some copies may still be available. Proceeds go to OUSSET

Chapter 10

Computing

This wasn't of course a "once-a-week" phenomenon, although it later became so, as later opening hours, Country Dancing, the Trivia Quiz, and more discos competed with its attractions. In the early days, Chez A would happen from about the Monday onwards, and it was not unknown to have a session on the Friday night for those students (and tutors) who weren't leaving until the Saturday.

"Where did the name come from?" I'm often asked - well, sometimes asked - well, somebody asked me once. There was a lecturer in the Statistics department of the Maths faculty of the OU called Angela Dean, who had, I am told, a high profile in the early days of the evening entertainment. It doesn't seem to be clear who first coined the phrase, but it was one of these that stuck, and since that time the title has given just the right hints of night-club sleaziness and possible sexual titillation when advertised to mystified students. (I suspect any student wishing to invoke the Trades Descriptions Act, having discovered the reality of what was on offer, would have had little difficulty in so doing!)

The evening also gave an opportunity for tutors to "rib" each other (in the nicest possible way - mostly). One male tutor not noted for his tact once began a turn by reminding the audience that Cinderella had two sisters - "B.." and "D..", where B and D (whose names I would not dare quote in full), were the names of two female tutors in the team that week.

Over the years, a number of different venues have been tried for Chez A. We have been in Maisie's Bar in MacRobert, in the table-tennis room in ASH, and, on occasion, in the room of rather indeterminate function at the ASH front entrance. Latterly, the coffee-bar in Pathfoot became the venue of choice, although it needed a fairly large audience to be effective. It may well be that we made a strategic error in starting too soon in the evening, usually on Wednesdays after "The Rainbow"⁶, but while the audience was still relatively sober - not a good idea.

The programme for these recent evenings followed a fairly well-trodden path - a

M101 (and M100 before that) and computing always seemed to have an uneasy relationship. Perhaps this was because the computer scientists thought that the mathematicians wanted computing in the course, and the mathematicians thought that the computer scientists wanted computing in the course. Whatever the reason, it would probably be true to say that throughout the years, computing did not really blend into the Foundation Course as a whole, despite, I am sure, the best efforts of those involved. It was also generally the case that the OU did not provide state-of-the-art hardware or software, and that therefore a number of students came to summer school with experience of considerably higher-powered equipment than was available at summer school. This led to a number of tutors (myself included) feeling inclined to talk about grandmothers and eggs and so on.

On the other hand, there was also a considerable group of students who a) had never touched a computer b) didn't want to touch a computer and c) were frankly terrified of touching a computer. Summer school should have been an ideal opportunity to help these individuals over their fears, but sadly so often the hardware let things down and led to considerable frustration; it is hard to get a nervous individual to accept that when the multiplexed line to Walton Hall suddenly goes down, it wasn't *their* fault.

Room A1 was usually the "terminal room", which had a sinister ring about it. It was even more sinister when surgeries⁴² were held there, leading to the oft-used phrase "surgery in the terminal room". My memory of that room was of students struggling hard against the odds, besieged by loss of connections, system crashes, fear, lack of clarity about what they were trying to do, particularly in the early days. Subsequently, the on-line approach was abandoned in favour of stand-alone PCs, and spreadsheets were all the rage, although again the quality of the software was unimpressive, and was certainly not state-of-the-art.

⁴² See chapter 11

⁶ See Chapter 8

fitting in exceptionally well to the OU summer school lifestyle⁴¹.

A word about Academic Assistants. These fine people, usually maths undergraduates in their final year, or perhaps recent graduates, were in many ways the key to the success of the summer school week. It was they who did all the organisation, reminded tutors what they were doing, wrote out lists and notices, reminded tutors what they were doing, assembled all the junk required for Chez Angelique, reminded tutors what they were doing, booked the tutors' meal out, collected the mail from the summer school office, and so on, reminded tutors what they were doing, and so on, and so on. It was always rather humbling to me to realise that Academic Assistants generally knew far more maths than I did at that time, or probably ever had, and the fact that they were paid a pittance, and were not supposed to teach the students (although many did unofficially) made me feel even more humble. At least one now has a full-time post with the OU as a Staff Tutor - having started as a "green" Academic Assistant what must seem like a lifetime ago!

typical evening is given below⁷:

1. A sequence:1,2,3,4,5,8,7,16,... This could be stretched out for some minutes, as there was always someone who couldn't see it⁸.
2. A "Eureka" Problem - a logical problem where the performer outlines a situation, and the audience have to explain it. For example: "A man is pushing a car past a hotel. If he gets it past the hotel, everything's fine, but if he doesn't, he loses all his money. Explain". (Unhelpful Clue - "a single parrot"). Questions could be asked, but the only permitted answers were "Yes", "No", or "Irrelevant". The difficulty always was that, in spite of warnings to the audience not to give the game away, someone inevitably blurted out the answer, sometimes within seconds. When this didn't happen, however, it could lead to a good few minutes of active audience participation, and the opportunity for somewhat risqué comments.
3. "Oddlands" - a country where the inhabitants like such things as apples, porridge, barrels, and balls, but detest pears, oatcakes, casks, and spheres. Again, this could be prolonged for some considerable time, and those in the audience who had sussed out the answer could be subtly (or not!) obscene in their improvised suggestions⁹.
4. "The Banana" - a "trick" involving a male tutor, a female tutor, academic assistant, or occasionally, student, a pound-note¹⁰ or five-pound note, and a banana. Without giving the show away, it has to be said that it could be a rather (c)rude performance, depending on the improvisatory ability of the female participant!
5. "Tutorspeak" - one tutor reading tutors' clichés, and another tutor giving the translation, eg "What's your name?" being translated as "WHY aren't you wearing your BADGE?" Inexplicably, this could sometimes have the audience in hysterics, and sometimes be a dead loss, to the point of embarrassment for all -

⁷ Solutions on back page!

⁸ ...9,32,11,....

⁹ The solution is in the name - the Oddlanders like Oddlands but not Evenlands!

¹⁰ These still existed in Scotland at the time of writing!

⁴¹ See chapter 5 - "... and Drink"

perhaps blood-alcohol content was a factor.

6. Topology - a ring put onto a piece of string tied to a tutor's wrists got it started, then we moved on to tying a knot in a piece of string without letting go of the ends (sleight of hand of course) and ending by tying a male and a female student together and inviting them to extricate themselves. It was very possible to do these acts wrongly, and most tutors succeeded in lousing it up at some point - the audience enjoyed it much more that way.

7. The "tutor's suitability test" - a set of easy questions which the tutor of course did wrongly, but still got the right answer, eg simplify $16/64$ by cancelling the sixes!¹¹

8. "The Colours" - names of colours written in different coloured inks, eg the word RED written in green ink, and volunteers asked to read out the colours of the inks. This was always preceded by the helpful hint "the colour of the first word is not blue" (it was in fact the word BLUE written in a different colour). It is actually much more difficult than it seems - the only successful candidates were those whose sight was so poor that they couldn't easily read the words themselves, but just saw coloured blurs.

9. The OU Calculator - basically a box of rubbish, from which various objects were taken, and the audience was invited to guess which part of the calculator each object represented, eg small branch of a tree represented "twig" functions (and that was one of the better ones!) On one particularly memorable evening, an Indonesian student was (with her agreement) representing the "tan" function - she was, however, perhaps less than impressed when a tutor tried to turn her upside-down - to represent (of course) the "inverse tan".

10. The "Custard Pie" - a cleverly worded question which required the victim to ask for a custard pie in the face; this was probably the one item which could really upset the participants, including on one memorable occasion, the MST204 Course Director. Enough said.

¹¹ Any reader who doesn't see the joke should take M120, unless they are already a maths tutor

Chapter 9

Tutors and Academic Assistants

It would be tempting to use this chapter to expose the foibles of the summer school colleagues I have worked with during the last twenty years, but since I have been doing that throughout these writings, there is really no need! Also, since I was given so much support from virtually everyone with whom I worked, such an exposé would be not a little ungracious. What always struck me about my colleagues was a) the amazing variety of experiences and backgrounds they possessed b) their general helpfulness c) their commitment and d) the generally high standard of teaching, particularly as the policy of using unwilling conscripts from among the full-time staff was changed. It was clear in the early days that some individuals, through no fault of their own, simply did not want to be there, which was not a recipe for good teaching or support. But these were few and far between, and I have very much enjoyed being part of a fine tutor team every week. Course Directors, who were responsible for ensuring that the academic aims of the course were met, were also a very committed group, generally of full-time staff, and the support they could and did give was in many cases outstanding.

The tutors' room, as has been mentioned was a wonderful place where the conversation could move from reasonable wit to fairly high-powered mathematical discussion to discussion of a particular student's difficulties, all conducted in a most civilised and thoughtful manner. I revelled in it, and it is another part of the summer school experience that I shall very much miss.

Of course there were idiosyncrasies - the time when a Course Director suggested that all the men should wear collar and tie to the first meeting with the students and was greeted with looks of blank amazement (before the mutiny!), the teetotal Course Director with the umbrella, the tutor who..... but I said I wouldn't! Many of the tutors in the latter years, incidentally, were themselves products of the OU - they invariably made exceptionally good tutors themselves, as well as

what is actually quite a difficult idea, it sounded like music from heaven!

That, then, was the Rainbow: I must have heard the presentation given four or five times before I felt I really began to understand it, and judging from some of my colleagues' comments many of them were in a similar position. It never ceased to amaze me that I was actually deemed by others able to give that presentation myself. Be that as it may, I suspect if one were to ask an ex-M101 summer school tutor in say ten years' time what they most remember, the Rainbow would not be far from the top of the list. After my first attempt those many years ago, I was given a "rainbow" bookmark by my colleagues - it still is an honoured part of my reading equipment!

11. "The Witches" - a parody of Macbeth, with M101 references. Inevitably the witches pointed hats fell off, and the black bin-liners which served for costumes tore - but by this time the audience had got the feel of the general lack of rehearsal and low standard of performance, and were prepared to accept anything.

12. Songs. The success of these depended on having a tutor who was prepared to "cheerlead", but the singing could really take off on a good night. The skew dilation formula QDQ^{-1} was good for a number of arrangements, starting with "Three Blind Mice" (as a round in parts - 16 parts was the record), then moving on to "Cwm Rhondda". It was discovered only several years after singing various trig formulae to the tunes of "Danny Boy", "The Skye Boat Song" and the "William Tell Overture", that one of the formulae had in fact been *wrong* for all those years - so much for a university education. Inspiration sometimes failed, as in the crashing conclusion to an arrangement of trig formulae to "Rule Britannia": "... and $\tan + \tan - a - a$ is nothing like this at all"! It was certainly the case that the sombre and pathetic¹² tones of "Over the sea to Skye" allowed the students to express in song their deep loathing of what are very unmemorable and irritating pieces of mathematics.

Why did Chez A, in my view, convey the true spirit of summer school? Because that is what maths is supposed to be about - ie it should be a) problem-solving b) stimulating c) cooperative and d) fun. The intention was to make the whole week full of those qualities, and Chez A epitomised the approach. I very much regret its passing, as I hope do others.

¹² ie possessing pathos - or possibly not!

Chapter 4

Dumyat

Why should a hill be part of summer school reminiscences? Ever since the M100 days, the Wednesday afternoon was free of lectures, and it became the custom to lead a group of students up this rather splendid hill on that afternoon. There was an attempt by the Walton Hall mandarins to curtail this excellent activity when M101 was introduced with a (*horresco referens*) a PRESENTATION on the Wednesday afternoon timetable. Hardened M100 course directors took this in their stride and simply rearranged the timetable, so that “The Rainbow” presentation was in the evening instead. This brought its own problems (see Chapter 8).

The walk always started from ASH at 2.00pm, to the second. Those who arrived a few minutes late were thus faced with the daunting task of finding their own route (it was done, but only by a few - see Figure 1) Local knowledge was essential to find a door in the wall of the University grounds which appeared as if by magic once the group had lurched to the left just before Geddes Court. Quickly (too quickly!) through the woods up an increasing gradient led to another door and gate onto a metalled road, up which the group laboured. It seldom rained, was usually hot, and there were always lots of flies. Once on to the saddle of the hill, there was the alternative of the low path (nice now, pay later) or the top path (climb now, scoff later). Ultimately the top was reached, whereupon those who had the foresight to bring liquid refreshment either generously shared their cans with the assembled multitudes, or demanded inflated sums of money for a swig. The MST204 group, who for some reason always left at 2.15¹³, arrived shortly after and headed over the hill to the pub at Menstrie. The M101 group returned by the same route as the ascent, trying to avoid serious injury at the slippery bit a few hundred feet (again none of this metric stuff!) from the summit. We were always back at ASH by 4.30 (usually the same afternoon!)

¹³ Presumably to avoid having to talk to M101 bods

business. Someone just had to say, of course, that there was a pot of gold at the end of it³⁹, comments were inevitable about the pretty colours, the flowers in the foreground being nice, and similar attempts at witty repartee, but eventually one arrived at a list of observed properties of the rainbow that one was trying to explain.

To be fair to the OU, there was a well-prepared set of OHP acetates (in fact, suitable acetates were provided for all the seven presentations), but the “going-for-understanding” brigade usually had to augment these with a few extra to fill in the gaps in the reasoning. The hi-tech angle was also there with a video, a computer simulation program, and of course the slide show. Many presentations started or ended with Kermit the Muppet singing “Somewhere over the rainbow” - this got the thing off to a good start, but one could sense the audience’s disappointment when they realised that, after that, it was just an ordinary tutor like me who would be “entertaining” them.

The “going-for-entertainment” brigade could, and often did, have a field day. One tutor arrived in sou’wester and waterproofs holding the fire-hose which he aimed playfully at the audience, another used to spray water all over people with a flower spray (he himself had an umbrella) and those tutors who went down the country weather-lore approach sometimes seemed to give the whole presentation in a contrived West Country accent which either weakened or strengthened as the performance continued.

(An alternative strategy for dealing with this presentation was to talk about something else entirely, and guest lectures were always welcomed. Memorable in this regard were “God said ‘Let Newton be...’”⁴⁰, and an also excellent talk on the work of the Norwegian mathematician Abel.)

Despite all these hangups, the end of the presentation was almost invariably received with applause - whether because the audience thought that they were listening to real expert, or whether because at that time in the evening they would applaud anything, I was never sure; but to the wretch who had fought for some 45 minutes (although the record I believe was 23 minutes) to put over

³⁹ not actually unhelpful - it is said because of course the end of the rainbow cannot be reached

⁴⁰ Alexander Pope - the lecturer was the late, much missed, John Fauvell

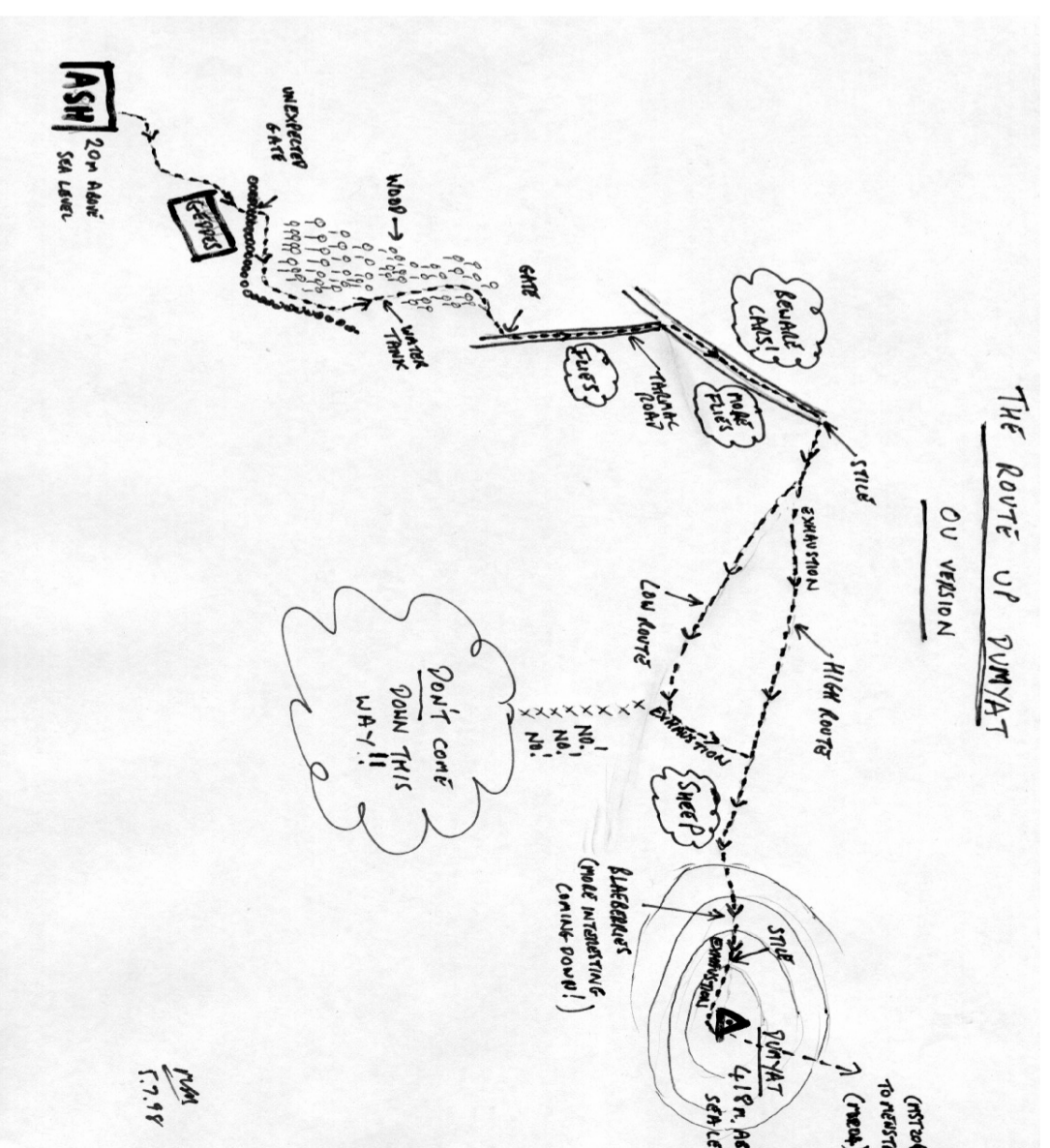
the Rainbow, having stated the Least Time Principle, being asked by an earnest and erudite middle-aged gentleman in the audience what I meant by saying that light *likes* to take the quickest path - was I attributing human qualities to light? I needed a question like that at that point like I needed a hole in the head, and as far as I remember, muttering something about not being trained as a philosopher, I lurched into the proof of Snell's Law, which thankfully I managed to negotiate without mishap.

As the years progressed, though, a lot of this stuff was minimised, and it was in fact possible for the daring to get through the whole business without ever mentioning mathematics at all - or at least, "hardly ever"³⁷ Most of us did however feel that we should at least expose the audience to the basic mathematics of the theory, although differentiating $\arcsin(h/k)$ was pretty heady stuff for an exhausted or inebriated audience.

The presentation always began with a valiant attempt to relate the proceeding to Block V (Mathematical Modelling), although in my experience asking the audience what Block V was about usually produced either blank stares or ribald laughter. Having failed in the relevance stakes, the hapless tutor was then expected to embark on a historical survey of rainbow theories. For a tutor who was a mathematical historian, or even perhaps taught MA29038, this was no problem, but for those of us whose knowledge of the topic was limited to what was in the tutor notes, perhaps augmented by a little rapid reading, it was hard indeed to be convincing. In an attempt to be original, one tutor invented a totally fictional character, with a realistic sounding name, "Nicodemus of Antioch", who reputedly believed that rainbows were caused by reflections from angels wings. Such was the apparent authenticity of this fictional character, that his name was thereafter quoted with a straight face by a succession of tutors desperate for additional information!

It was also obligatory to show a succession of (really quite good) slides of rainbows, and ask for some audience observations (this was in Block V terms "Identify the real problem"). Depending on the blood-alcohol (or perhaps alcohol-blood) content of some of the audience, this also could be a hazardous

³⁷ with apologies to Gilbert and Sullivan
 38 Second level course - History of Mathematics



I often ask myself what the particular attraction of this walk was. The answer is that it was simply a perfect afternoon excursion - just the right length, a real hill, excellent views, an escape from the physical idleness of the classroom, and nicely variable in terms of gradients (gentle bits alternating with steep bits) The fact

that the summit could be seen from the bridge over the loch and vice-versa highlighted the achievement.

Tutors who had done the walk before, some of them many times, had a clear advantage both psychologically and physically. It was certainly a situation where they had a clear leadership role, although it was not unknown for some of our number to impress others by racing well ahead of the pack.

As the eighties progressed to the nineties, and issues of Health and Safety and accountability became more crucial, there was a nice point as to whether this was indeed an official OU function, or whether students were going at their own risk. The most bizarre situation in which this issue arose was the occasion on which a student taking part tripped on a 2 inch step as he left ASH, and succeeded in breaking his leg before he had gone 10 yards. Although litigation was never remotely likely, there were a number of entertaining discussions as to whether he was actually on the walk at that stage!

Happily there were never as far as I am aware any other significant injuries, although it was not unknown for people to get (temporarily!) lost on the way down, usually by going too far south and ending up in an inviting but virtually impenetrable wooded valley. Dumyat is not a harmless hill, and there are certainly sufficient cliffs and rock outcrops to present a danger to the foolhardy.

Underfoot, the walk was generally straightforward, although there could be bogginess in some of the wetter summers. The advert always said “Trainers adequate” - I sometimes wonder on what scientific basis we made this statement although no-one ever challenged our judgement.

A lesser brother (or sister) to Dumyat was of course the Wallace Monument, a less strenuous, but still satisfying afternoon’s walk with an educational bit in the middle. In fact, this monument was a kind of summer school talisman; it could be seen from almost everywhere (ie apart from a countable number of points - mathematical in-joke, sorry), it appeared in several Chez Angelique problems, and much of the first evening of any summer school week was taken up explaining to new students, particularly those from south of the border, what it was, and why it was (actually I never worked out the second bit!)

Chapter 8

The Rainbow

If to be asked to do a presentation was to gain one’s pilot’s wings, then to do the Rainbow was to be appointed Squadron-Leader. It was generally accepted among the tutor body that the Rainbow was bit of a brute, and that strong men (and women) had wept when being asked to present P5. There were a number of reasons for this. One was that few tutors were in fact familiar with the theory behind the phenomenon that we call the rainbow. Secondly, after having watched others giving this presentation, few tutors were in fact familiar with the theory behind the phenomenon that we call the rainbow. Thirdly students reaction to the lecture was unpredictable, and finally the attempt happened on the Wednesday evening, which put a bit of a damper on the climb up Dumyat for the tutor who had to perform in the evening, and also meant that the audience was full of non-Dumyatters who had instead been carrying out a scientific and practical investigation into the functioning of Glenturret Distillery at Crieff. All these factors combined to make this particular presentation potentially more disaster-prone than the others.

Tutors’ approaches to the challenge could be categorised into two basic styles. There were those, including myself, who harboured an ambition to actually make students understand the theory, and another group who aimed low on the understanding stakes, but high on the entertainment rating. Looking back to the early days of the Rainbow, which was scheduled, I seem to remember for the Wednesday *afternoon*, and actually *took place* as scheduled, the first approach was *de rigueur*. So serious and intensive was the treatment, that students were asked to bring their calculators and take part in the problem-solving exercise. This had its advantages for those who stood the pace and actually arrived at the magic 42 degrees, as observed by Roger Bacon, for the angle of deviation (or rather 138 degrees, but who cares?). It was also essential to derive Snell’s Law (the thing that tells you that a stick looks bent in water) from Fermat’s Principle of Least Time (which basically says that light likes to take the quickest path between two points). I recall vividly in my first ever attempt at

time”. The examiner’s comment however was anything but sympathetic: “No wonder!” “Even examiners are human” was the message.

Fortified with these comments, the students departed to collect their attendance certificates; since many students had trains to catch, it did not behove the P7 presenter to go on too long - 20 minutes was the absolute outside. It did however give the Course Director and those tutors still present a chance to say farewell to the students, who were generally extremely appreciative. The end of P7 marked the end of the summer school week, and it was a good way to end, if a trifle anti-climactic after all the events of the week.

These then were the presentations which formed the core of the week, with the exception of P5, the grand-daddy of them all.....

Dumyat made an impression on many students, and a number with considerable disability made it to the top. For some, it was the first occasion in their lives when they climbed a real hill, and in some cases led to them doing much more of the same when they returned home. It certainly was what was needed at that point in the week, and allowed the cementing of friendships which by that time were becoming well established. There’s nothing like gasping for breath along with a companion who is in a similar state to set up very strong bonds! For some, I am certain, Dumyat was the pinnacle of the summer school experience - for me it pointed the speed of the passing years: every time I headed off up the hill, I couldn’t believe that it was a full year since I had been there last.

Chapter 5

Food and Drink

It is customary to link these two items, although at Stirling they fulfilled rather different functions. Food was simply a means of replacing used energy, whereas for some, drink was a way of life. Let me deal with food first:

The official method of sustenance was of course the student refectory. This had a number of drawbacks - a) the queues b) the inevitability of the menus eg haggis on Saturdays, chicken nuggets on Wednesday evening and c) for tutors the vexed question of whether we should make an effort to eat with the students. This last point was really only an issue in the early part of the week, since once the ice was broken it happened informally anyway, but there were a number of heart-searching and occasionally heated discussions about this in the tutors' room. The OU ethos of togetherness and support (which was one of the reasons for most of us getting involved with the OU in the first place) led us all to the view that in principle it should be a good thing, but somehow it didn't always work, and it was clear that some students would rather be left alone than be confronted this strange individual called a tutor trying to make strained and artificial conversation. (This was also true of the Ice-Breaker parties¹⁴, which could also, through no fault of anyone's, be gruesome occasions - but at least the students didn't have to go - everyone has to eat!)

Queuing was on some occasions a real issue; tutors could at least phase their arrival to avoid the worst of it, the knack being to arrive shortly before Technique Bashing gave up its dead. This wasn't much help unfortunately for the tutor who was taking the Technique Bashing session; it was not considered good form to finish and sprint out of the bottom door of the Lecture Theatre, and the said tutor was forced to queue with the recent recipients of his pearls of wisdom, which was fine if the session had gone well, but less fine if, as was so easy to achieve, one had a made a total pratt of oneself! Tutors also had the advantage of local knowledge which made it clear that on the first Sunday

¹⁴ See Chapter 5

to the bedtime cocoa, with the aim of making the students sleep easier. They had of course just experienced the Mock Exam, a two-hour simulation of the real thing, which in October would last for three hours, and by that time had definitely had enough. The Mock Exam itself was a rather strange affair - the students could bring in what notes they liked, marked the exam themselves and generally did their own thing (in fact the revelation that the Mock Exam was self-marked was one of the things that clearly lifted the tension the previous Saturday evening!). On more than one occasion I remarked to the "victims" at the beginning "If you feel a bit silly sitting a mock exam, you should try being a mock invigilator" We took the invigilation seriously, but what our actual function was we found it hard to decide; as another tutor said, "If you mock cheat, you will be mock disqualified"!

However, after a short break for the self-marking of answers (the keen ones), a cup of coffee (the rather less keen ones) or a pint (the very unkeen ones), P7 happened. It was really just an examination of actual student scripts, with observations by the presenter, always trying, of course, to give a positive message. It was generally regarded by tutors as a bit of a soft-option, but I have to confess that on the one occasion I did it, I didn't find it as easy as I thought (not helped by my referring to the mythical student as "he" all the time, for which I was rightly taken to task afterwards - although 95% of that week's students were in fact male).

Anyway the messages that generally came over loud and clear were:

- a) Do what you can - we want to give you marks
- b) Neatness helps, but often there is more in a script than first meets the eye
- c) Copying out the Handbook may be a way of passing the three hours, but won't get you a lot of marks
- d) Even a few lines can sometimes gain a lot of marks
- e) One mistake doesn't mean the end; we "follow-through" the results of errors
- f) Benefit of the doubt is given wherever humanly possible.

One script that always stick in my mind was where a student had written a huge number of pages of irrelevant stuff, most of it copied out of the Handbook, and eventually wrote, presumably to elicit sympathy, "I'm sorry I've run out of

the logistic equation³⁶ and the Feigenbaum diagram in groups (of students that is, not the mathematical kind). Because of its newness and its unexpected results, yet the fact that it was based solidly on work covered earlier on in the course, I found this one of the most successful group sessions. The excitement of suddenly finding a very stable 3-cycle around $k=3.83$ never ceased to amaze me, and I hope some of that amazement was passed on to the group. It is always the case that teaching something makes the teacher understand it better, and I certainly came out of these sessions understanding more about Chaos Theory than when I went in - I hope that also applied to the students.

Anyway, the lecture theatre presentation, including as it did Julia sets, the Mandelbrot set, other fractals and self-similarity, was a challenge for many of us, but was generally handled with panache. It was certainly one where it was unlikely that many students would be ahead of the presenter, although, as was often the case, much of the knowledge of the presenter had been gained by watching previous versions of the same presentation (see Chapter 8). There was a lot of technology to handle, and latterly it became customary for the presenter to enlist the help of another tutor, or the Academic Assistant, at least to press the buttons on the computer at the right, or (depending on the competence of the assistant) the wrong, time!

Visual aids did not necessarily have to be hi-tech, however. One aid was often plucked through the open window of the tutors' room - a fern leaf, which of course served as an excellent example of self-similarity. If, as often happened, one or two small insects remained on the leaf, who were then roused to activity by either the heat of the OHP, or by a desire shared by a number of students to escape from the lecture, their wanderings about the OHP platen would cause a degree of amusement to the audience. This could be somewhat disconcerting to the presenter, especially when someone would offer odds of 3-1 on the fly on the left! All in all however, a good presentation - given the popularity, excitement and relevance of Chaos Theory, I hope its contents aren't lost forever.

P7 - "How to pass Exams"

Continuing the analogy of sherry and liqueurs, I suppose this one corresponded

³⁶ $x_{n+1} = kx_n(1 - x_n)$ $0 < k < 4$

morning everyone arrived early for breakfast; on that day the strategy was to arrive either *very* early or *very* much later. as the week progressed, this became, understandably, much less of a problem, since the vast majority of the students arrived later and later and attendance at Callisthenics¹⁵ also began to suffer.

Another issue was the "number of items" game. Meal regulations in the University laid down (and probably still do) a number of conditions of entitlement (or lack of it), and "discussions" with the long-suffering refectory staff were legion. These poor individuals were often put in the position of defending the indefensible, when reasonable requests for substitution were made. Some of the rules seemed to be on the same level as one of Russell's paradoxes, and, whilst not perhaps demanding a rethink of the whole basis of mathematical structure, did lead to some questions about individual sanity. Among these restrictions was the issue as to whether one could use one's meal-card to buy sweets, and if not why not? Most tutors took the line of least resistance, and also got to know those reasonable staff who were endowed with a degree of common-sense, and who would be prepared to interpret this bizarre set of rules in a humane fashion.

There was also an interesting example of group dynamics that used to be observed among a table of tutors at the end of refectory meals. Coffee was served in the coffee lounge (seems reasonable!), and a group decision had to be made to leave the dining room and go in search of this beverage. There was always one among the group who, judging the time to perfection would say, with pitch of voice sliding interrogatively upwards: "Coffee???", upon which the whole group would stand up and head lemming-like for the next room. This whole sequence became stylised to the extent that no-one would move until the required word had been uttered by the appropriate person - silly stuff, but then so is much of life.

Most tutors found the refectory food not wholly adequate to support the rigours of a twenty-hour day (and night) - there were, however, other ways of finding food. One was to cross the bridge to the MacRobert shops (inevitably shut on the first morning of Summer School, which was of course a Sunday). The late-night refuge for the starving was the ASH Coffee Bar, staffed from 9pm - 1.00am

¹⁵ Chapter 6

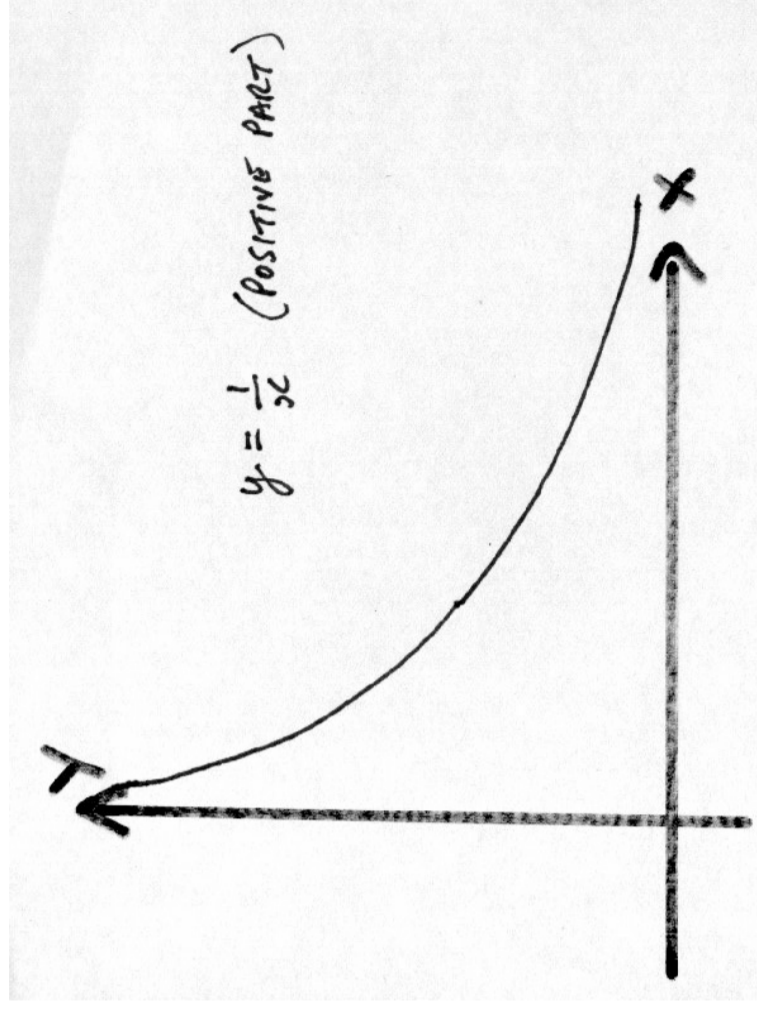
every night (except for some reason, Friday), providing primitive tea coffee and cocoa, and a selection of generally pretty reasonable rolls and sandwiches. Change was usually a problem (not the management of change, but simply the providing of it in filthy lucre terms). For some reason, irrespective of the stage of the evening at which one arrived, the “float” seemed to have disappeared, and frantic scramblings were undertaken to find coins which would approximate to the required amount. The students who “personned”¹⁶ this were inevitably pleasant and cooperative, clearly using the “dark watches of the night” (or at least the early evening) to attempt some study when things were quiet. Many happy conversations took place in the ASH coffee bar, once it had been located down the stairs beside the porter’s box - I remember it taking me several days in my first week at summer school to actually realise that there was life below stairs.

Almost every week, usually on the Thursday (the last “real” evening of the week), tutors used to escape from the campus, and head off to the tutors’ meal. One of the main incentives for me, apart from the general lure of decent food, was to escape as much as possible of the “Last Chance” Disco - I’m sure hell is like that: too loud, too hot, you can’t find anywhere to sit, and you can’t get near the bar! Anyway, *revenons à nos moutons*¹⁷, many and varied were the places to which we took ourselves - the aforementioned Sherffmuir Inn, Indian Restaurants and Chinese Restaurants various, The “Birds and Bees” (walkable this one, particularly memorably accompanying the electrified and electrifying go-cart of one tutor who had limited mobility), and a rather up-market fish restaurant near the Wallace Monument. These were always rather merry (in every sense) occasions; a group of ten people working together intensively for a week has much to share by the end of the week, and of course as the years passed by many of us got to know each other very well. There were an enormous number of in-jokes, and we were probably very self-indulgent, but everyone gave every impression of enjoying the mixture of wit, bonhomie and total exhaustion.

The mention of exhaustion leads me to mention again (perhaps the only) depressing thing about my progression through the years of summer school, namely the extent to which I became less and less able to do without sleep.

¹⁶ OU and PC are more or less synonymous!

¹⁷ “Let’s return to our sheep” - strange phrase!



Lest the reader gain the impression that the entire summer school week was spent in silly japes, it might be worth a thought that the above exercise took in total about 5 minutes out of a the quite heavy session; its value in putting students in a receptive frame of mind, and possibly waking them up during the graveyard slot, particularly late in the week, should not be underestimated. Anyway, mathematicians are always thought of as a serious bunch³⁵, and anything which tries to dispel that myth is in my view worthwhile. Motto: “Maths is Fun!”

Chaos theory was a quite different kettle of fish (to mix a metaphor - or perhaps not actually; think about it). This was the dénouement of an afternoon exploring

³⁵ A view supported by most tutors and students from other faculties, who generally found the mathematicians’ enthusiasm for activities such as Chez Angélique quite inexplicable

had happened, which was the cue for the presenter to say “ I think I need a hand for this calculation” .

The other entertainment which has gone down in OU annals was the “false start” to the curve-sketching presentation. The routine was for a tutor, who (unbeknown to the audience) was not scheduled to take the presentation, to begin in a formal fashion by saying that he wanted to clarify a small detail of the curve $y=1/x$ (see diagram) and to decide whether it ever met the x-axis. Using a combination of two OHP acetates and paper stuck to the wall, the graph was then seen to be extended out of the right-hand lecture theatre door; the tutor followed the graph out, shouting several times “No, it hasn’t met the x-axis yet” and disappeared along the corridor, still shouting.

There was usually then a silence - the audience fully expecting the tutor to return. After a few seconds it became clear that this was not going to happen, and the Course Director was seen to become more agitated (depending on their acting ability).

At this point, a number of things could happen. The easy thing was for the Course Director to ask for a volunteer from the tutors, upon which the tutor actually scheduled would agree to do the presentation “unprepared”. (I was once in that position, and was not over-pleased to be approached afterwards by a member of the audience who said “considering you weren’t prepared for that it wasn’t too bad really”. I refrained from hitting him!)

The alternative approach was to “set-up” a (usually fairly new) member of the tutor team, by asking them if in front of the audience they would give the presentation unprepared. This was when we saw the mettle of the new recruits - no-one ever refused the gambit, but reactions differed. One tutor uttered a strangled “what me?” and headed off palely down the aisle as if on automatic pilot before he was released from the situation - upon which he took it very well. Another female tutor headed off to the dais with determination, upon which the “real” presenter (male) shouted “What’s it worth if I do it for you, lassie?”, to which the reply was “Anything, anything!”, bringing the house down.

When I began, as a mere stripling of some twenty-seven summers, I was able to go to bed at three in the morning, be up by seven, and continue this feat for a fortnight. As the years rolled on, all of us in the teams realised, I fear, that we were not as young as we were, and that far from burning the candle at both ends, in some cases it was hard even to find the wick! Nevertheless, we went to great lengths to conceal this degree of decrepitness, although some of the zombie-like appearances at Callisthenics (including sometimes the presenter) fooled no-one.

Tutor meals did, I seem to recall, have a tendency to have a degree of drink¹⁸ associated with them, which leads me on to the second part of this chapter - Drinking. I suppose it will come as no surprise that OU students behave very much like “ordinary” students as far as alcohol is concerned - or perhaps a bit more so, since they only have one week to experience student life whereas others have all year. My first indication that it was not going to be a dry experience was at my first summer school briefing, when money was demanded of me, more or less as a matter of course, for the tutors’ “kitty”. This provided a good stock of booze, mainly wine and beer, to fortify the tutor body, and perhaps some of the most pleasantly relaxing times were spent chatting with a cool¹⁹ glass of wine just before lunch, or at the de-brief, inevitably at 5.30 pm each evening. It would be wrong, however to imply that the students were being taught by continually drunken alcoholics - I cannot recall a single instance of any tutor taking any session with their faculties impaired by drink.

For nostalgia’s sake, I list one or two of the bars now defunct, but which were the scenes of some determined drinking over the years: The Alan Grange and Pathfoot J Lounge are the two that come to mind - tutors wishing to escape from campus used also to frequent the Meadowpark Hotel, before it began to be a haunt of the younger set (to which, sadly, most OU tutors do *not* belong!)

One of the potential points of friction was the noise made by returning revellers in the “wee sma’ hours” - Stirling being a campus where noise seems to travel particularly well, with an attenuation rate of which BT would be proud. Doubtless, the consumption of alcohol did not help this problem, although in a

¹⁸ Master of McEwans

¹⁹ Amazingly, there was a fridge which went backward and forward every year between the M101 tutors’ room and Walton Hall! Where this figured on the equipment list we have yet to ascertain.

number of cases much of the noise was caused by shouts to others to keep quiet!

Tutors had at least two advantages in all this: firstly, knowing where to go to get a drink in relative peace and, secondly, from experience being aware of the need to pace oneself early in the week (or rather the fortnight, in the case of most tutors). Students who hadn't quite grasped this were easily identified as the week progressed by late arrival (or non-arrival) at Callisthenics, a haunted and despairing appearance in the mornings particularly, and having no idea what day of the week it was.

No chapter on Summer School alcohol would be complete without a mention of the bizarre situation applying to the Saturday evening "Icebreaker" parties in Pathfoot (as I've said, pretty gruesome, but necessary, functions generally). The strange licensing laws operating at that time (I've already referred to the 10pm closing of all bars and pubs in Scotland) meant that it was impossible to obtain a licence of any sort for the parties. This problem was solved in the following quaint way: as one entered the Pathfoot coffee lounge, one had the opportunity to purchase a raffle ticket for (if memory serves) 50 pence. The draw took place immediately, one's ticket was pulled out, and one won a prize (a glass of wine, or a can of beer, according to choice). Every ticket won, and you could "enter" as many times as you wished. We were assured that this made the whole thing legal - ours not to question or reason why.....

Although alcohol played a significant part in lubricating the summer school wheels, it was not generally an encumbrance, and the vast majority of students, and tutors, used but did not abuse the gifts of Bacchus. "Work hard and play hard" would be a good description of many summer school students' attitudes, and seldom did the playing hard get in the way of the work. This is, I believe a real tribute to the students, whose commitment, dedication and sheer hard graft, especially when finding the maths difficult, I could only admire.

This was always greatly enjoyed by the audience, although whether any connection was made between this Thespian enterprise and the rest of the presentation (the requirement for precision in mathematical statements) is debatable. As with all summer school tutor performances, this one was always under-rehearsed, over-acted and largely unintelligible - the main quality of the actors being bewilderment. At least one tutor, having spent some time memorising his one line, only ever got as far as "Aha!" before asking for a prompt (he did however say "Aha!" several times while waiting for inspiration to strike).

The rest of the presentation - a nicely structured one, proceeded more or less uneventfully - it was possible to throw in some extra entertainment by "proving" that $2=1$ (not usually true), by proving that Bertrand Russell was the Pope, and by suggesting an alternative abbreviation for QED ($W^5=$ "which was what we wanted"). I always thought of P4 as the "soft-option" - a nice lively start, enough "meat" for the more advanced students, yet the possibility of making a number of useful teaching points to those who weren't so far ahead. I'll miss P4 too.

P5 - The Rainbow (Wednesday evening)

Such is the position of the Rainbow presentation in summer school lore, that Chapter 8 is devoted in its entirety to this one presentation!

P6a - Curve sketching and P6b - Chaos Theory (Thursday afternoon)

When M101 summer school programme was revised in the mid 80s, the curve sketching presentation was replaced by a much more upbeat presentation on Chaos Theory. The passing of curve-sketching was not much mourned by most tutors, since for tedium it was rivalled only by P2, although it did have the saving grace that there was no film, and the presenter had a bit of scope to keep things light. One ploy was to surreptitiously place a cardboard cut-out hand on one OHP under the guise of pointing out some detail in the working, and then casually move to the other OHP leaving the other "hand" in place. Gradually (on a good day) members of the audience began to laugh as they realised what

with the happiest of memories.

P4 “Are you convinced?” (Tuesday afternoon)

Ask any tutor about P4, and they are most likely to say “Ah yes, the one with the train!” This requires, for the uninitiated, some explanation. Here for your delectation is a small dramatic piece which often began P4:

Dramatis Personae

A social science OU student

A science OU student

A maths OU student

A philosophy OU student

The Presenter

Place: a train on the English/Scottish Border, heading for Stirling.

Time: just before summer school

Presenter: The train enters a tunnel

FX: Darkness

All: Diddle-dum, diddledy-dum, diddledy-dum, diddledy-dum..... (ad lib)

Presenter: The train leaves the tunnel

All: Diddle-dum, diddledy-dum, diddledy-dum, diddledy-dum..... (ad lib)

FX: Lights, OHP projection of black sheep (or cardboard cut-out)

Social Science Student: Aha! The sheep in Scotland are black

All: Diddle-dum, diddledy-dum, diddledy-dum, diddledy-dum..... (ad lib)

Science Student: Are you sure? At least one sheep in Scotland is black

All: Diddle-dum, diddledy-dum, diddledy-dum, diddledy-dum..... (ad lib)

Maths Student: Are you sure? At least one sheep in Scotland is black

on at least one side

Pause for laughter if any

Philosophy Student: Are you sure? There appears to be an object which

seems to resemble a sheep which appears to be black in colour on at least one of

its sides.

All: Diddle-dum, diddledy-dum, diddledy-dum, diddledy-dum..... (ad lib)

Curtain

Production Note: Use diddledy-dums to cover up freezing, corpsing and

general ineptitude where necessary.

Chapter 6

Callisthenics²⁰

If Chez Angelique was the “liqueur” of the summer school experience, then Mental Callisthenics, to give it its full name was surely the pre-prandial sherry (although frankly the thought of sherry at that time in the morning is not one many of us would want to contemplate). It was a fine conception; about ten short questions, most of them able to be done mentally, to wake the students up, and get them thinking mathematically, as well as revising one or two techniques that would be required later in the day. On the whole, it did achieve these aims, although there was a school of thought which said that it was only there because few students would remember anything that was done in the first 15 minutes of the day, and therefore what was done was almost an irrelevance.

The ritual was always much the same (in principle, although each tutor brought their own idiosyncrasies to the performance). The tutor of the day (ie the one who was “callisthening”²¹) wrote up the questions one at a time on the Overhead Projector, giving whatever was in their view sufficient time for the students to address each question. At the end of all ten, each was worked through, and in many cases the tutor obtained the right answer, although generally the entertainment was greater when the answer was wrong! Those of us who are congenitally unable to write anything on the OHP that anyone else can read used to prepare all ten questions on acetate beforehand, but it was always felt that to have the answers written out in that way was really not playing the game. Most of us therefore will recall the cold sweat gathering on the brow, (and probably elsewhere) as we realised that we’d lost a minus sign somewhere, and that all the cancellation for which we were hoping did not seem likely. It was at that point that one could digress with the story of Rutherford, the great classical physicist, who, when he found himself in a similar situation before a group of students, all hanging on the great man’s every word, finally gave up and, turning to the audience with a conspiratorial smile said “Dammit, my friends, let’s just put a minus in”! Unfortunately, we were not Rutherfords,

²⁰ Yes, it does have two “r”s, although many of us didn’t believe it until we saw it in a dictionary

²¹ a new verb coined at summer school, I think: eg “are you callisthening today?”

and the only reason the students were hanging on our every word was to see if we could find yet another way of making asses of ourselves.

In the early days, Callisthenics was a developing art, and a number of memorable performances took place, although perhaps of dubious value to the students. Worthy of mention are the “Callisthenics Record Attempt”, where a sheet of 100 questions was issued at the beginning, with the answers running cyclically 1,0, -1,1,0,-1....., and the set of questions, beginning with “What day is it today” in which every answer except the first was “two”²². There were some impressive entries to the proceedings, one tutor turning up in dressing-gown and pyjamas, taking off the dressing-gown, drawing a hook on the blackboard (remember blackboards?) and hanging the dressing-gown on it. One tutor also “rewarded” the students for their cooperation by arranging for two female tutors to appear at the end in fishnet stockings (and a few other items!). (This was in the pre-PC days).

The first Callisthenics question every Sunday morning (without exception as far as I am aware) was “How wide is your bed in Andrew Stewart Hall”, this perhaps epitomising the typical trivial Callisthenics question²³. It was always presented as an exercise in estimation, but was actually making the point that the beds pulled out from underneath the wall shelves, to give almost one foot more width, thus facilitating a more restful night. Some of us dressed up the answer by suggesting that there were in fact two types of bed, Type A at 1’10” wide, and Type B at 2’8”. There was then an algorithm to turn a Type A into a Type B, viz “Pull it out from the wall”!²⁴ This usually (but not always) got the first laugh of the day. (As an aside, it never failed to surprise me how, the same “joke”, presented in as far as I could see the same way at the same stage in the week, could one week have the audience slapping their thighs with mirth, and another week left them looking at the tutor in a kind of bemused silence. It was this uncertainty that meant that summer school, and lecture theatre performances in particular, were never totally stress-free occasions)

Another callisthenics sessions worthy of mention was one in which *all* the

²² The day was of course “Twosday” - the old ones are the best

²³ The answer will come as a disappointment to those who were expecting something more salacious from the title of the book.

²⁴ I didn’t cotton on to this for two years, despite hearing that callisthenics question twice!

In the early days of M101, the Areas and Volumes session lasted a whole morning, with students sitting in alternate rows so that tutors could “circulate” and assist between film clips - this seemed to work rather well - I wonder why it was changed?

P3 - “Algebra and Geometry” (Monday afternoon)

In some ways, this was the most straightforward of the Presentations, although some tutors seemed to regard it with suspicion. In essence, it consisted of revision of some of basic matrix concepts, viewed from a geometrical standpoint, leading to the decomposition of a matrix into the form QDQ^{-1} and checking that the decomposition simplified led back to the original. For those that don’t understand the previous sentence, don’t worry, a number of the M101 students didn’t either! (In fact the symbols QDQ^{-1} , used in Block 4, had a kind of mystic significance from the inception of M101, appearing frequently in songs and other attempts at humour. Because of the association with “skew dilation”, and the similarity of the word “skew” to the word “screw”, a number of humorous, if somewhat crude, variations entered into play - ‘nuff said!)

This was a presentation where some originality was possible, if only to refer to various practical applications of the QDQ^{-1} approach, the most accessible perhaps being the Rubik Cube (which for a couple of summer schools was all the rage, with a resident expert tutor teaching M203, who could do the cube in under a minute on a good day). But the principle that to make a particular move on the cube, you transform to an easy situation, make the move and then transform back to the hard situation was one to which the students related easily. It was also common to end the presentation by turning a rabbit into a duck, with some nonsensical story about a rabbit who wanted to learn to fly and had been given a matrix to help him. Essentially this was a picture of a rabbit which, when rotated through 90 degrees looked like a duck³⁴ - it also gave the chance in the course of the story to be publicly rude to the Course Director - an opportunity not to be ignored!

I always enjoyed doing P3, and of all the presentations, perhaps this is the one

³⁴ with acknowledgement to Martyn Gardner - see picture in Appendix

The technology in later years within the Pathfoot Lecture Theatre was “improved”, with lights, screen, slide projector and computer all controlled by one hand-held infrared controller. This should have made things easier, but in fact had a number of traps for the unwary. One was that, having switched the lights *off*, one couldn't of course then see the buttons on the controller to switch them back *on* again; if the wrong button was pressed, the lecture theatre could go from pitch darkness to full brightness (or vice-versa) in an instant, causing the somnolent student and tutor body to physically recoil in shock as if struck. Another source of insecurity was that some buttons unpredictably caused the white projection screens to toggle up and down, an event which took all present, including the presenter, by surprise and probably threw the person at the front off their stride just a little!

I should mention, before we leave this rather arid component of the summer school landscape, that tutors who were involved in the follow-up sessions immediately after any presentation were expected to attend that presentation. The reason for this was officially that we would be aware of any questions asked (some hope!) or of any different approach taken by the tutor, but the real reason, I suspect was that we would then be ready to sort out the mess if the presentation hadn't quite achieved its aims. Anyway, because of this expectation, I must have watched the Areas and Volumes Film (hardly a riveting story on *first* seeing) perhaps some 20 or 25 times. This may explain my somewhat jaundiced view of this presentation - having said all that, it was always a competent and clear exposition, and seemed to be of value to the students. It was also good to offer them something relatively straightforward early in the week.

My only other memory of this presentation was when a tutor was clearly doing the session under *force majeure*, and at that time one of the problems was to find the volume formed by the intersection of two pipes at right-angles (the maths wasn't too hard, but visualising it was difficult). A student in the audience was rash enough to ask the tutor “Could you describe the shape please?”, to which the tutor (clearly fed-up to and beyond his back teeth) replied somewhat acerbically “I'm not here to describe it, I'm just here to find the volume of it”.

This did not seem to some of us to epitomise the normal OU supportiveness!

answers were 42 (the answer to the world, the universe and everything²⁵). The Hitchhiker's Guide waned in popularity for a few years before enjoying a well-deserved revival, but the joke was generally appreciated. The rather clever concluding question, “Bill and Ben are identical twins. Bill is forty - how old is Ben” had most students (and some tutors) thinking a mistake had been made - the answer of course was “forty, too”. This joke was helped on one occasion by there being a tutor named Bill and a tutor named Ben²⁶, not very twin-like, and at least one being clearly rather older than 40.

One of the extra stresses of callisthenics was that one's colleagues generally came in to see the fun, and obviously were not opposed to the odd mistake being made. Little sympathy could be expected from colleagues in that situation; in fact rather the reverse would be true, and misleading comments from the back row were not unknown. On one occasion, when the tutor at the front had got himself into a real tangle, and was muttering to himself vaguely in front of a restless but thoroughly entertained audience “...perhaps that should be a 3....no, I think it's a 5....”, a colleague sitting next to me was heard to remark in a broad North Country accent: “I always try t' get these little details sorted out *afore* I starts”. Occasionally, students would offer helpful comments; one of my colleagues, on having a small slip pointed out to him at the beginning of what was going to be a longish calculation, came back with: “Thank you sir, but I think you'd have had much more entertainment over the next couple of minutes if you'd kept quiet!”

I must also mention one marvellous moment when one of our number used (or rather intended to use) as the final “joke” question the following (apologies again to the non-mathematical):

“Evaluate $\sin x/n$ when $n=1/12$ and $x=\pi/6$ ”. Now, $\sin(\pi/6)=1/2$, so the answer to this is $(1/2)/(1/12)$ which is equal to 6. The rather nice joke is that the answer can be obtained (quite wrongly of course) by cancelling out the n 's in “ $\sin x/n$ ” to leave the answer “six” as a word. Unfortunately, possibly due to haste, the question on this occasion was misquoted as “... $x=\pi/3$ ”. This led to an answer of $6\sqrt{3}$, which meant the “joke” couldn't happen. The look of consternation on the face of the presenter as he saw this disaster approaching was enjoyed greatly by

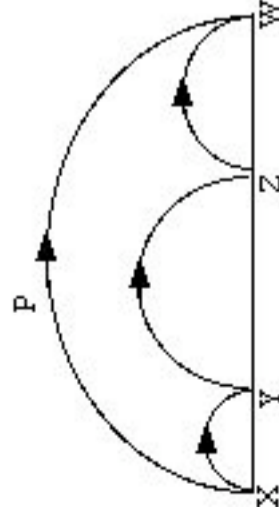
²⁵ The Hitchhiker's Guide to the Galaxy - Douglas Adams

²⁶ but not as far as I am aware any tutor called “Weed”

his colleagues at the back, who also greatly enjoyed the mystification of the audience as they tried in vain to see something humorous; this blunder was followed during the week by a number of pointed questions to the tutor concerned about the value of $\sin(\pi/3)$! All taken in good part - which is why of course it is good to reminisce about it.

I also can't resist recalling the question about a goat tethered by a rope to a pole in the middle of a rectangular field - the question being what proportion of the grass the goat could eat. This looked as if it might lead to some fearsome mathematics, but in fact the answer was "all of it"! As the Irish tutor who made this joke his own would say "Sure, an' it's easy to see you've never tethered a goat"²⁷

There was also the "semicircle" question featuring two semicircular paths on a line AB and asking which was the shorter $X \rightarrow Y \rightarrow Z \rightarrow W$ or $X \rightarrow P \rightarrow W$ - see diagram). One could always poll the audience opinion (who tended to find the option "couldn't care less" the favoured response) - in fact, irrespective of the number of semicircles, both routes are the same²⁸.



The "practical application" of this, of course, was that "if you're staggering back from the MacRobert Centre after a hard evening, it doesn't matter how you stagger, so long as you stagger in semi-circles". Occasionally raised a laugh.

I feel that I must also mention "If the answer is 9AW, what's the question?" Many inspired and clever questions were suggested, but the "real" one was always greeted with a groan.²⁹

²⁷ the goat would of course eat through the rope first - it's better to use a chain!

²⁸ See Appendix 3

²⁹ "Do you spell your name with a 'V', Herr Wagner?"

replaced it. Some, but by no means all, of the audience then began to cotton on!)

From the many memories of P1, I mention just two more: first the trick whereby an ordinary cutting from a newspaper is cut by a volunteer, and the presenter correctly predicts the line at which it is cut. This is a beautiful trick, in that it is quite baffling, yet there is really no sleight of hand and the solution is very simple - once you know it!

The other one is simply to ask the audience to each, without consultation, think of a whole number between 1 and 10, a colour, and a vegetable. The results, particularly with the vegetable, are highly predictable - try it with a group of say 50-60, and compare your results with those given at the end of the book.

Neither of these things, you may be thinking, seem particularly mathematical. That's debatable, but they ensured audience involvement and readiness to move on to more cerebral activities.

Latterly, P1 had a follow-up session, in which students worked as groups to solve a problem left by the presenter; as tutors, if we were lucky the presenter would tell us beforehand what the problem was, and might even suggest an approach to a solution; if we were unlucky we would be left trying to lead a group of students without being clear where we were heading (see my comments in Chapter 1 about this!)

P2 - "Areas and Volumes" (Sunday afternoon)

The epithet coming to the minds of most tutors about P2 is either "very boring" or, perhaps (on a good day) "fairly tedious". There was very little scope for any tutor to use their personality to liven it up, since it was basically a film with occasional interjections by the presenter. Since the presenter's interjections were the calculus and arithmetical calculations, and there was every possibility of things going wrong, many of us felt that we were in a no-win situation, and that the best we could hope for was getting through the 50 minutes without significant mishap. (This hope failed within seconds for one luckless tutor when within seconds of beginning the presentation, one of the overhead projectors blew up and all the lights went off - it was somewhat uphill from there!)

audience, and the double OHP provision, with acetates on one, and the presenter's calculations on the other, is an ideal teaching setup. The one drawback is that because of the spacing of the steps in the aisles, it was possible to descend from the back only in a kind of limping lollipop, or at a run (with the danger of falling flat on one's face). But I really miss that room.

But every Presentation has its own flavour, and I'll now proceed to ramble through my reminiscences of each in turn.....

P1 - "Getting started" (Saturday evening)

This was the keynote presentation, setting the tone for the week, almost always given by the Course Director. I never had the opportunity to present it, not did I want the opportunity to present it! This is not "sour grapes", but simply the realisation that the success or failure of the week hung on the quality of that first lecture at 7.30 on the Saturday evening, and I have enough responsibility for overall success and failure in my full-time job³². I never saw a poor P1, and most were of very high quality, succeeding in breaking the ice and perhaps persuading students that they might just conceivably enjoy the week after all.

One of the most impressive aspects of that initial presentation was the way in which presenters managed to achieve good audience participation, no mean feat in an audience of 100-120 people³³. That sort of approach can easily go so horribly wrong - the fact that it never did is a great tribute to the professionalism of those involved. That is not to imply that nothing ever went wrong - there was a "mind-reading" trick involving a telephone directory where attempts at communication by the tutor with the duplicate directory came to grief as a student who had spotted the messenger in the projection room at the back of the lecture theatre called out "Somebody's trying to tell you something!" (A similar occurrence took place, in the early days when there was a large bench at the front of the lecture theatre. The audience was getting rather baffled by the presenter's apparent clairvoyance, until a hand appeared belonging to the individual with the duplicate phone book stationed beneath and behind the bench; the hand took a glass of water, and after a short pause, presumably for a drink,

I have perhaps dwelt rather too much on the "funnies". Many of the questions were simply routine (eg differentiate \sin^2x), multiply two matrices and so on, but some of them were almost certainly just too hard. There *was* a danger of tutors showing off, or trying to be too funny, and a general rule was introduced that one funny question was sufficient - rightly I think; there is nothing worse than someone in the lecture theatre who is the only person present who thinks they are being funny.

Except of course on Fridays.....

Course Directors arranged Friday Callisthenics in a number of ways:

- a) It didn't happen (the excesses of the night before) or
- b) It happened more or less normally or
- c) A group of students took it or
- d) A tutor or group of tutors did it with almost all the questions being either silly or impossible.

I was fortunate in working mainly with type d) Course Directors, so was able to observe, and participate in some really very funny³⁰ end-of-week performances. If the Chez Anglique singing had gone well, we sometimes ended with some songs - perhaps the favourite being "We taught it our way" (with apologies to the late lamented Frank Sinatra). Since none of us were very clear about the tune after the first line (it's actually quite tricky and has a number of awkward modulations), it was probably one of the worst performances of the week (and that is saying something). However what was lacking in accuracy was made up for in volume.

Examples of Friday questions included: Share 102 sugar cubes between three cups of coffee, so that there are (is?) an odd number of cubes in each cup. The solution is of course: 1, 1 and 100. At this point the tutor at the front waits for someone in the audience (there's always one) to say "but 100's not an odd number"; to which the reply is (I expect you're ahead of me!) "but 100 is a *very* odd number of cubes to put in a cup of coffee!" Intellectual stuff, of course. There was also the mental arithmetic one, where the tutor embarks on a story

³² Headteacher of Tynecastle High School in Edinburgh - we share a wall with Heart of Midlothian FC

³³ Giving away cans of beer for correct answers certainly moves the odds a bit in favour of success!

³⁰ Well, some of us thought so

Chapter 7

Presentations

about a bus stopping and various people getting on and off. The audience are frantically doing their sums of counting the people, but are usually ill-prepared for the actual question which is “how many *stops* were there?”. A final example, for the chronologically challenged, was to ask the audience to “Complete the following bill” concerning a number of items for a picnic, in “old money” (£sd). The catch was that, to “complete” the bill, half a pound of butter was needed, otherwise the bread would have had to be eaten dry - the £sd answer was irrelevant.

The Friday sessions usually worked reasonable well, because:

- a) the students were “demob happy”
- b) the tutors were mightily relieved at reaching the end of the week
- c) the students were by then aware of the low standard of performance to expect
- d) most of them were half-asleep³¹

More seriously, the atmosphere at Friday callisthenics was in many ways a measure of the success of the week, and in every case (I can’t remember any exceptions), the delight was to be in front of a group of people who some six days previously had been suspicious, quiet and generally apprehensive, but were now clearly enjoying themselves, and had become, even in that short time, really good friends to many of us. The challenge to those of us who were facing a second week was to “psych” oneself up to achieve the same again with a new group of suspicious students, with whom we could not assume to have anything “in the bank”. This was probably the hardest part of the two week stint.

But Callisthenics, as I mentioned earlier, were just the appetiser. The main courses, certainly as far as the tutors were concerned, were the Presentations.....

To be permitted to “do” a presentation was the equivalent of pilots earning their wings - it was a recognition that you could take your full place in the tutor team, and were to be allowed to be let loose on the unsuspecting student body for the best part (or perhaps the worst part) of 45 minutes, all on your own. Even for those who were fairly used to the public face, the prospect seemed daunting, and I never really got over the attack of queasy tummy that prevailed for the hour or so before I was due to give a presentation. We often used to ask ourselves why this should be; why should I get nervous before giving P3 (Algebra and Geometry in the new numbering system, after P0 became P1), when I had given it apparently successfully half-a-dozen or so times before? The answer of course, as any performer knows, is that it is not the fear of what you think *will* happen, but of what conceivably *could* happen, that leads to all the stress. Hit it wrong in the first couple of minutes, tell a joke that falls flat, lose an OHP acetate, make an early mathematical mistake however small, and your credibility is threatened, in which case it could be a long 45 minutes indeed. I was fortunately never really in that position, but I had seen a number of respected colleagues for whom this situation had occurred, and I certainly found that I could never relax until 10 minutes or so “into the mission”.

But generally it was a rewarding experience. On occasions, the end of presentations was marked with applause, and this certainly made everything feel worthwhile. Lecturing to an audience that is tuned-in is very gratifying, although as most presentations came after lunch, the “graveyard slot” effect meant that on occasion some of the congregation were less than responsive.

All the presentations took place in the Pathfoot Lecture Theatre, a genuinely delightful place to operate. It was one of the few lecture theatres I know which actually appears smaller from the front than it does from the back (the exact antithesis of the lecture theatre I experienced at Reading on the only occasion I was sent there - but that’s another story). The presenter really feels close to the

³¹ or actually asleep - at one Friday session someone actually dozed off and fell off their seat - an inspiration to the presenter! The Thursday evening, by the way, was the “Last Chance” disco...