Today’s issue of Micro-News includes a feast of interesting international contributions. Vera Fantinato tells us something about the education system in her homeland, Brazil. Viv Pybus has written to us about life in Boston and Hugh Connell (former student in Gerald’s laboratory) who recently visited Dunedin has provided some notes about his work in Sweden.

Since it is exam season it is appropriate that John Cross and Heather Brooks have offered some student howlers ‘hot off the scripts’. Also, maintaining the fine golfing and literary traditions of the VRU, Steve Fleming has contributed an item about the University Golf Tournament that he recently organised.

Micro-News Flashes

* From Viv Pybus, news that husband, Nic Bishop’s latest book "From the Mountains to the Sea: the secret life of NZ’s rivers and wetlands" should be in the shops in about 3 weeks.

* Congratulations
Last Tuesday Judith Bateup successfully completed the oral defence of her thesis “The production of bile salt hydrolase by Lactobacillus species”.

Shortly after the examination Judith was spotted heading for the fifth floor for Lindauer and cheese sandwiches -way to celebrate Jude!

* Your intrepid reporter ventured onto the roof one recent sunny lunchtime to capture a snapshot of our idyllic surroundings. However, a discreet retreat was called for when he inadvertently stumbled upon a cluster of microbiologists conducting epidermal UV-absorption experiments.

* Maria has requested that we individually confirm our preferences for listings in the staff address list. Please complete the yellow form and return promptly to the office.

* Departmental Photo Saga
If you would like to have a copy of one of the departmental group photos currently on display in the tea-room, please add you name to the list by Wednesday of this week.
* Departmental Party

Some snaps of happenings at last Friday night’s party are included on The Back Page. This was yet another highly enjoyable evening - special thanks to Buck, Brad and the rest of the organisational team.

Unfortunately however, a rather greater than usual clean-up operation was necessary on Saturday to return the tea room and elsewhere to some semblance of order.

'Sorry, partner?'

* Christmas Party

Buck will be listing on the board in the tea-room some suggestions for our Christmas Party. You are requested to put your name against the option that you favour.

Sixth Floor

The sixth floor crew have been keeping extremely busy. According to Stef’s calculations Vernon drank his way through 333 cups of coffee in the last three months.

Rachael has handed in her lit. review and is off to tramp on Stewart Island. John has planted his first field trial and was relieved to see the rain.

Bart is diverting his energies to becoming a serious athlete. Congratulations Bart on winning a poster prize at the Centre for Gene Research Poster Evening. Helen has shifted house yet again and looks forward to a permanent home. Rachel has taken on the challenging role of foster mothering for the week - please treat her with care.

Richard (Temuka High School old boy who has done good) will be speaking at the school prizegiving and has the opportunity to influence many young men and women about to face the real world (God help them).

We are all sad to see the fourth years leave and wish them all the best for the future. Sadly Brian is also leaving - thank you for all those lunches.

**DEVELOPMENTS IN IMMUNOLOGY**

Some challenging hypotheses have emerged from the BIOL 115 immunology paper. We feel that those interested in scientific discovery should be kept informed, so here goes. First, though, it seems reasonable to offer the caution that some of the concepts seem to cut across generally accepted notions. For example, in one case, the lymph node was identified as a thyroid, with a renal artery and renal vein attached.

This Frankensteinian approach was disputed by another worker, who proposed that the renal artery and renal vein actually (or also?) supply the thymus. Thinking of the efferent lymphatic duct as the 'effluent duct' is perhaps a legitimate mnemonic device, which encouraged one student to think he would clearly make the grade in medicine, as he labelled the afferent ducts 'affluent ducts'. Nonetheless, students are clearly in trouble financially, and the sale of body parts appears to be one way of financing studies, since several students made the offer that we should 'take the spleen'.

These small errors aside, we are offered the information that lymphocytes are broken down in red blood cells, - presumably after they have finished 'circulating in blood seeking evil antigens and foreign organisms'. The red cells appear to have a dual role with respect to lymphocytes, however, since 'lymphocytes move from the lymphatics to the blood circulation by riding on red blood cells'.

The suggestion that T lymphocytes are found in mitochondria may be linked to the fact the cristae form a structural component of lymph nodes.

A new lymphoid organ has been discovered in the gut wall, known as Peters patch, and it is now understood (by one person at least) that the salivary gland is a primary lymphoid organ.

Many of you will know that Colin Mackintosh at Invermay has an interest in immunology, and this has now taken on somewhat sinister overtones. - We are informed that 'cells go from primary lymphoid organs to secondary lymphoid organs to colinitise them'.

Primary lymphoid organs appear to be socially irresponsible since they 'reproduce and travel' whereas secondary lymphoid organs 'remain in place'. However, we should not totally exonerate the secondary lymphoid organs, since 'their function is to tell the primary lymphoid organs where to go'. This may be connected to the observation that 'the genital centre is found in the lymph node' - in addition to the germinal centre, one assumes.

It is well known that Immunology is a rapidly expanding area of knowledge, and I hope the above has reinforced that observation.

-John Cross

David doing some hands-on research in South Africa

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**Recent Publications**


Virology, 204: 234-241

Another demonstration of the plasticity of the immune response. CD8+ cytotoxic T cells are the major effector cell population involved with the clearance of virus infections. Using a mouse paramyxovirus virus (Sendai), a natural respiratory infection of mice, we examined the immune response generated against the virus in the absence of CD8+ T cells. Mice lacking CD8+ T cells, either by administration of monoclonal antibody to CD8 or in mice genetically adapted so that minimal CD8+ T cells are present, cleared the virus, albeit in a slightly longer timeframe than in normal mice. We have previously demonstrated the appearance of CD4+ cytotoxic T cells in these mice but are still not certain whether this new cell population are responsible for virus clearance. In this paper we demonstrate another possible mechanism of protection in a major increase in the number of IgA-secreting cells in the draining lymph nodes of the lungs and the appearance of high titers of serum IgA very early in the infection. The antigen recognised by the majority of these IgA antibodies is the haemagglutinin-neuraminidase protein of the virus responsible for attachment of the virus to the lung epithelia.

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**FROM THE DID YOU KNOW FILE**

Boxes of sterile tips are disappearing from the cupboards in the Glass prep. area. Debbie is asking for them to be returned. Any one finishing at the end of this year or anyone who has been saving washing is also asked to talk with Debbie and arrange a suitable time for washing to be done. Dirty glassware delivered during the hours of darkness to Debbie's area close to Christmas will be identified and returned.

5th floor autoclave users are reminded that the timer should be set after the working temperature has been reached. (110-120 degrees). Pressure enables the steam to reach high temperatures and to penetrate, but it's the temperature and time that does the damage. The more you put in the autoclave the longer the time required. I will investigate getting either an automatic
control system or at least a temperature gauge that’s user friendly.

The front door is finished and we will set up the cards as soon as we hear about the locks. The door will unlock at 8 am and lock at 5 pm Monday to Friday, as per normal. If you would like any variation on this, (as for the poster display) please let me know well in advance.

In response to those who expressed strong feelings about the coke machine, it’s coming back.

-BT.

The 17th Annual University Golf Tournament

This year the tournament was held at Taieri although it had been cancelled earlier in the year due to lack of interest. The number of entries was phenomenal and in complete contrast to the response in March. Entries were still arriving up until the day of the event. This surprised the organising committee and for the first time ever we considered the possibility of setting a limit on the size of the field. However this did not happen and eighty eight participants turned out on a fine but blustery Sunday morning.

From all accounts everyone who played and even those who did not play had a pretty good time. This was largely due to a new dimension added to the tournament this year - a marque erected at the fifteenth by Speights serving free beer and sausages.

One group of novices who shall remain nameless surely got their moneys worth not only from the amount of golf they played but also from the time spent at the Speights tent. Their round was typical of many that day.

The players in question arrived just after nine
They seemed oblivious of the time
The rest of the field had been teeing off since eight
But they were not concerned that they were late

Using their clubs more like a flail
The threesome teed off into a north westerly gale
With only eighteen holes to play
Would take the best part of a day

Playing the sixth proved quite a struggle
Their cards were now in such a muddle
As shot after shot finished up in the lake
They called on the lord to give them a break

All morning they had battled away
By twelve o’clock they had reached halfway
Their stableford points were looking thin
It was obvious to them that they were not going to win

At the eleventh hole it was time for a spell
For the wind and the heat was beginning to tell
Across three fairways they were seen to stride
To get a taste of some southern pride

Fortified with sausages onions and ale
They continued their battle into the gale
But despite their best effort to hit straight in the breeze
Their shots missed the fairways and finished under the trees

The prize giving ceremony was scheduled for three
We were beginning to wonder where they could be
Through the clubhouse window was a sight to be seen
As they made their way towards the eighteenth green

For six long hours they had hacked their way
Around an unforgiving course on a very windy day
When asked for their cards, they replied in dismay
I’m sorry to say, our cards were blown away

- Steve Fleming

Living and Working in Boston- from Viv Pybus

I am fortunate to be working at Brigham and Women’s Hospital which is one of the teaching hospitals affiliated to Harvard Medical School. It is situated on Longwood Avenue along with many other hospitals, Harvard Medical School and School of Dental Medicine, which collectively make up the "Longwood Medical Area". The particular lab I work in is called the Channing Laboratory, which specialises in microbial pathogenesis and epidemiology.
There are around 20 Postdoctoral Fellows at the Channing (PhD and MD or both) and we come from all over the World - Canada, China, England, the Netherlands, New Zealand, Norway, Slovakia, Spain - and also from diverse backgrounds - Microbiology, Biochemistry, Immunology, Molecular Biology, Chemistry, Physics and Medicine. This makes for really interesting discussions at our journal club meetings, which are (almost exclusively) for the Fellows. One of the features of the journal clubs is the free lunch provided. In fact one of the features of all the seminars/talks here is the food. As well as presenting research, the speaker at the weekly (Friday mornings at 8:30am) seminars has to provide bagels and cream cheese for the audience - this always ensures a high turnout and goes some way towards making up for the lack of morning and afternoon tea sessions here. One of the best things about being here is the regular opportunity to attend seminars given by famous scientists.

Boston is a big city, with a population of 6 million. As in all big cities commuting is a real issue. Some people even commute from New Hampshire (adjacent state) every day, and 5:00am starts are common for many people. We live in the city of Newton which has the advantage of having lots of trees and open spaces while being situated close to town. I have several choices of public transport (each of which takes 45 mins) and my favourite is the subway. This particular stretch is above ground and is all through trees, so I don’t feel like I’m in a big city.

Boston is a great place to be. Situated in the NE of the US, it is very accessible to some very picturesque locations, including Cape Cod, and the states of New Hampshire, Vermont and Maine. Boston is a cultural centre and there are always great concerts, exhibitions etc on. Many shows come to Boston after touring New York.

My husband (Nic Bishop) who is a natural history photographer and writer is enjoying photographing new subjects. He is also building up a menagerie at home. We have a mosquito net tent set up in the spare room which houses several butterflies. Numerous chrysalises are over wintering in the fridge and Nic has an ant colony and a red-eyed South American tree frog in his study.

I’ve said no to snakes! We both enjoy the city “wildlife” - squirrels, chipmunks, skunks and raccoons although the locals are about as thrilled with these creatures as we are with opossums.

Quotes of the Week
From 2nd year papers

“Aerobes will naturally be fine growing on nutrient agar plates in the environment”
- [Petri dish Park?]

“Jam already naturally contains sugar”

“Spoilage of muscles is common if the correct procedures are not taken”

- Heather Brooks

More quotes from CFS patients

“ You know, Mike, placebos just ain’t what they used to be...”

“Having CFS certainly makes you believe in a God. Well, somebody up there is sure as hell out to get me...”

- Mike Holmes
Our Swedish Connection

Tjäna, to all my friends and colleagues in the Microbiology department. Yes, I am on holiday again – my biennial visit to see family and friends. It is certainly a pleasure to be where it is a little warmer. Sweden is well and truly on its way into the depths of winter (Nov-March). It is great to see so many familiar faces. So what have I been up to since we last met.

Most of you will remember my departure for Sweden in 1990 to take up a postdoctoral position with Prof. Catharina Svanborg at the Dept. of Clinical Immunology at Lund University Hospital in Southern Sweden. Well, I am still there. In January of this year I was appointed to the Medical Faculty as a junior lecturer (70%) and as Clinical Assistant (30%) in the Hospital Diagnostic Laboratories.

While there I have been involved in research covering the area of *Escherichia coli* induced urinary tract infection (UTI). Catharina is well known in the field for her work in the 1980’s on the role of P fimbriae in UTI. Her interests now lie in the area of mucosal immunology and the role of the uro epithelial cell in the immune response to UTI. She now firmly believes the epithelial cell is an integral part of the immune system and in the last few years has published several ground breaking papers in this area.

My involvement in her group has been to continue examining the bacteriological aspects of urinary tract disease. I have been working for the last two years in the isolation and characterisation of a new and novel family of antibacterial molecules produced by the human mucosa. These molecules appear to strongly influence the type of *E. coli* strain which colonises the urinary tract and causes disease. Keep your eyes on Nature over the next few months and you will hear more about it.

I have research projects in conjunction with others in the group studying the role of haemolysin, type I and P fimbriae in UTI. It appears that adherence is not an absolute pre requisite in order to establish stable bacteruria, something which has been dogma for the past 15-20 years. However, Fimbriae are necessary for the induction of disease. I am also involved in a human colonisation trial testing a new type of therapy for treatment of UTI in patients with chronic, recurrent UTI. We are using an asymptomatic bacteriuric strain to colonise the urinary tract in the hope of preventing pathogenic strains from establishing. To date, the trial has been very successful with all patients remaining disease free for up to 1 year.

Lastly, I am involved in a project where we are trying to elucidate the mechanisms of pathogenesis in the disease haemolytic uraemic syndrome (HUS). This disease has a truly odd modus operandi. It is caused by a specific O-Antigen serotype of *E. coli* – 0157. The organism colonises the gut and causes enteric disease. A secondary part of the disease can be the involvement of the kidney. Shiga-like toxin (Verotoxin) produced in the gut by the bacteria is absorbed into the blood with subsequent attack of the kidney. Bacteria have never been isolated from the kidney but the consequences of an HUS episode are severe. It may result in the death of the patient or if they recover they often have severe renal damage which may require kidney transplantation in the future. Plasmapheresis is the standard treatment as antibiotic therapy appears to aggravate the disease. Very little is known about this disease or the molecular mechanisms of disease induction.

So this is what we get up to in Sweden. We are a group of 22 working for Catharina comprising of research associated, postdocs, clinicians, postgrads, undergrads and lab personnel. It has been fantastic to work in the clinical environment. It has provided a great opportunity to work closely with patients and to acquire clinical material.

In conversations I have had with you all over the last few days and by the flow of publications I have seen in the literature over the last few years it appears research is still a strong and healthy part of Microbiology life at Otago. To my surprise, many scientists I have met around the world know where Otago University is and it is due to the high standard of work you produce. Keep it up, and I wish you all well and every success in the future. I look forward to seeing you in my next visit or may be at an overseas meeting.

Häsalinger

Hugh Connell
Our Brazilian Connection

Since Brazil is so very big it is hard to talk about the education system of the whole country, but I can say something about the State of Sao Paulo, which is the most highly developed. Its capital - the city of Sao Paulo - has 15 million people, some of the best theatres, restaurants, libraries and universities, beautiful architecture and a strong economy. However, it is also beset with problems like busy traffic, pollution, poverty and violence. In the State we have three public Universities: Universidade de Sao Paulo (USP), Universidade de Campinas (UNICAMP) and Universidade Paulista (UNESP). The last one is where I work.

When the students finish secondary school they need to do entrance exams at the Universities of their choice. These exams are very hard and extremely competitive. So, usually the students first need to do a special, private and expensive course for one year, to better prepare themselves. Although there are no fees at the Public University, the students must buy everything they need for their course. For example the dentistry school doesn't give them anything. All the necessary tools, gloves, masks, etc. must be bought. Without modesty I can say that Brazil's dentists are some of the best prepared in the world; in training, much more emphasis is placed on clinical subjects than on basic theoretical studies. All the dentists have plenty of work, because unfortunately we have a very high incidence of decay. But it's not easy in a country where only around 10% of the people earn nearly half the national income. Our government doesn't tend to invest much money in education.

I was very surprised to see your lab on the ground floor: spacious, comfortable, video monitors and other technology. Our labs are much simpler than yours and we have great difficulty getting money to buy basic materials like glass ware and culture media.

My lab at the Dentistry School is very simple, with little equipment; my school doesn't have a tradition in research and because of this it is hard to get money from the Foundations which support research. But, my friends and I are trying to change this. Dr. Mario T. Shimizu stayed one year in London studying enzymes produced by Candida (proteinase, hyaluronidase, phospholipase) to produce antibodies and use them for serologic diagnosis. Dr. Carmelinda S. Unterkircher stayed 2 years at the Pasteur Institute studying Immunology from Paracoccidioides brasiliensis. And I am here to learn about BLIS colonisation. When we do some good research abroad, on return to Brazil the chances to get money for research are much higher and so we hope we can develop more technology in our labs.

However, in all the three Universities, we do have some very good and big research centres with traditions of excellence and international research and we can learn a lot there. For example I did my masters and PhD at USP because it was the best at that time. Yet in general terms, we still don't have the same technology as New Zealand. The highest technology is usually found in the industrial sector.

The Seventh International Symposium on Microbial Ecology (ISME-7) will be held in Sao Paulo, August 27 to September 1, 1995.

From the first symposium, in Dunedin, in 1977, to the sixth meeting in Barcelona, Spain, in 1992, these Symposia have grown in size and importance. Dr. Maria Therezinha Martins, the chairperson, has been working hard to providing a forum incorporating a wide variety of aspects of microbial ecology.

In a country in which education is not a high priority, if we don't have strong motivation to progress it's very easy to feel disappointed and stop. But if you look at the positive side, you do face a big challenges all the time; I believe that one of the best pleasures in life is to overcome challenges. For those who like challenges, my loved country is a fantastic place to work. And for those like me, who like wonderful beaches, pools, hot water and gorgeous weather, or forests and jungles, BRAZIL is a terrific place for having fun. -Vera Fantinato