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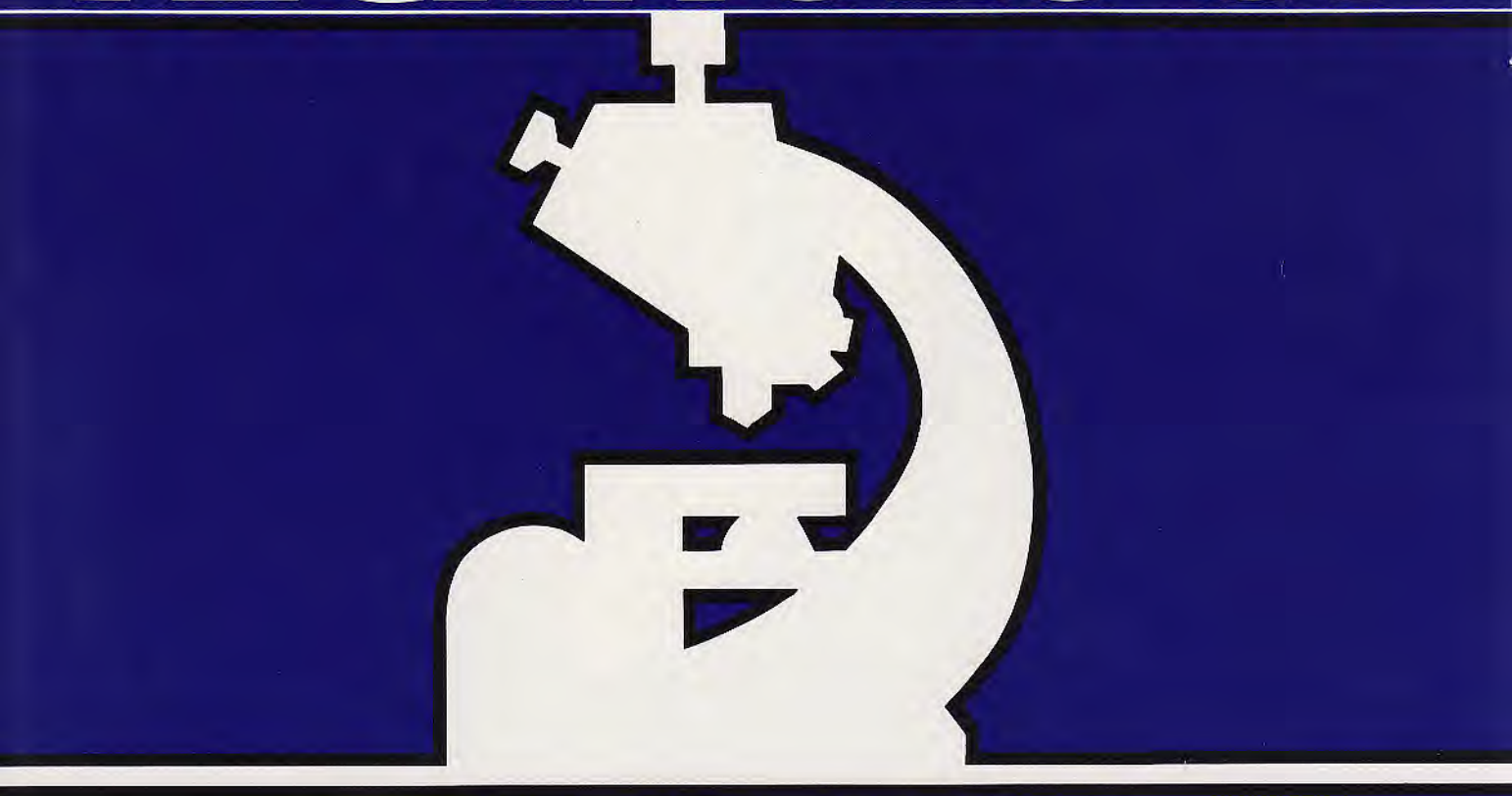

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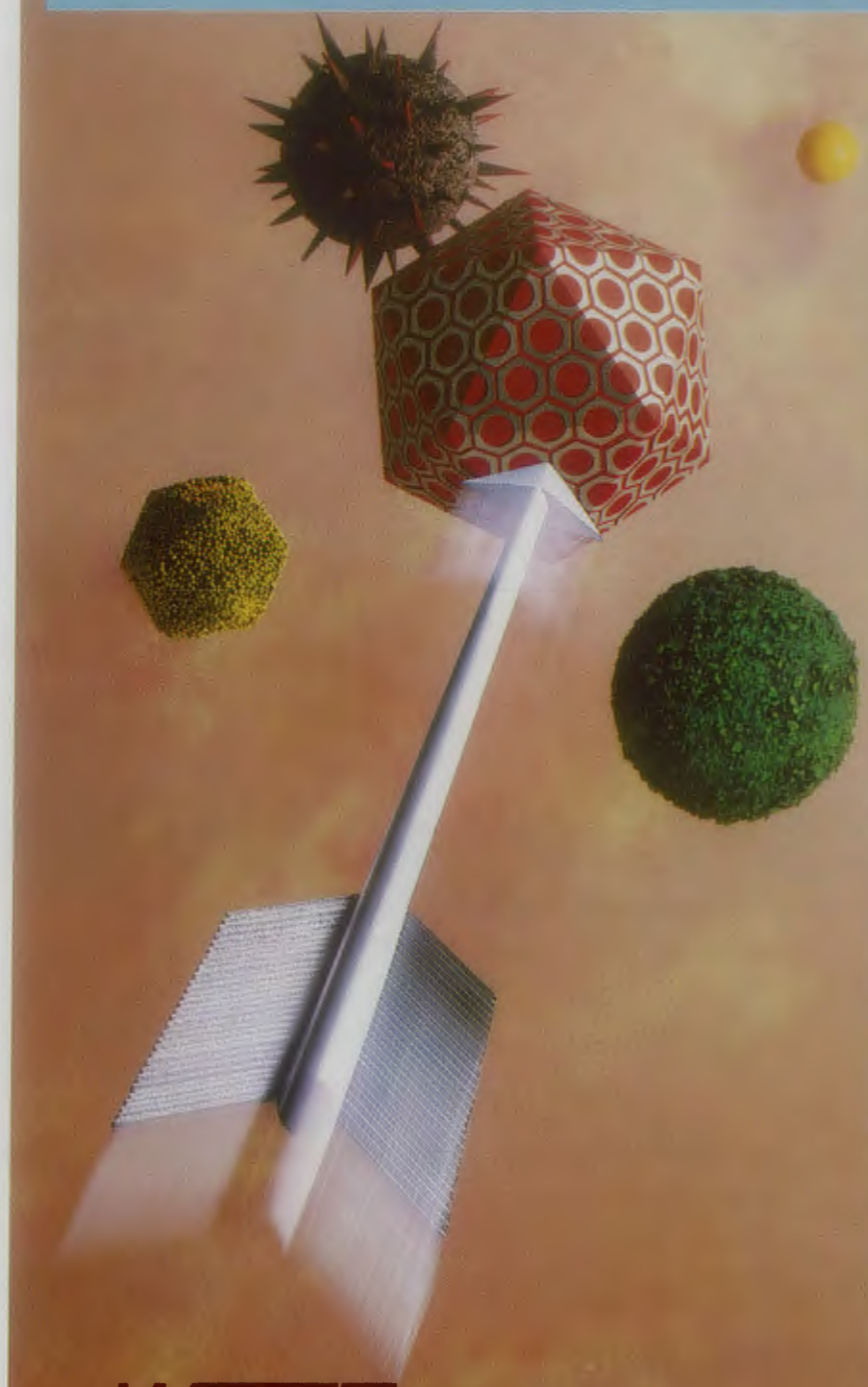

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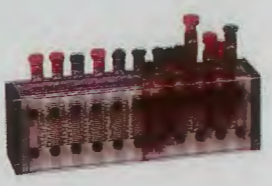

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Original Articles

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From Vol. 36 No. 1 all papers published will be in the form known as "Vancouver Style" or Uniform Requirements for Manuscripts submitted to Biomedical Journals. Full details may be found in the New Zealand Journal of Medical Laboratory Technology, Vo. 42 No. 2, page 54 to 60 or from the Editor.

Intending contributors should submit their material to the Editor, D. Dixon-McIver, Biochemistry Laboratory, National Women's Hospital, Auckland, New Zealand, or The Editor, P.O. Box 35-276, Auckland 10, New Zealand. Acceptance is at the discretion of the Editor, and no undertaking is given that any article will be published in a particular issue. The copy deadline for each issue is the first of the month prior to the month of publication.

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This Journal is abstracted by: Biological Abstracts, Chemical Abstracts, Cumulative Index to Nursing & Allied Health Literature, Current Clinical Chemistry, Hospital Abstracts, Institut nautchnoi informatsii.

T.H. Pullar Address

D.J. Philip

Recently retired Principal Technologist, Middlemore Hospital

I want to say at the outset how privileged I feel to be asked to present the T.H. Pullar address for the second time. I had rather fondly imagined that my days of addressing Institute meetings had ceased — certainly for something as prestigious as this address. The standing of this address in our Institute calendar only serves to heighten my apprehension in presenting it. The T.H. Pullar address was introduced to pay homage to a pathologist, Thomas Henry Pullar, who was a sincere friend of this Institute and an ardent advocate of better eduational standards and methods for medical technology. Although I never worked with 'Thos' as he was affectionately known I met him on many occasions: in the oral examination, where he demonstrated an educational approach which was not at all universal in those days; he did not demonstrate his own cleverness or knowledge (although that was extremely considerable) he did not try to trick his candidates (as was the wont of many examiners); but he did put his candidates at ease and coax from them their best both in knowledge and deductive reasoning. I met him a number of times in the Palmerston North lab where he is perhaps best remembered and in his later years in the Tauranga laboratory. My abiding memory is of an academic giant with an interest in the promotion of education for med techs and an empathy for all who work in pathology laboratories. Today we honour his memory as a mentor, innovator and friend of this Institute and I make no apologies for the substance of this address which I know would have been close to his heart.

During my years as President of the Institute a capricious, but I hope kindly, editor of our Journal referred to my presidential address as 'Philip's Phables' and I don't intend to depart from that mode today. It was a greater Teacher than I who used parable to reinforce His message.

In December 1831 a drop-out medical student turned clergyman sailed as a naturalist on a surveying expedition in the Atlantic, Pacific and Indian oceans which included visits to many countries including Australia and our own. Five years later he returned to England and published over succeeding years various journals, books and monographs on a variety of geological, zoological and palaeontological subjects. However, these were but forerunners of his great work which was published on November 24, 1859 titled "On the Origin of Species by means of Natural Selection", or "The Preservation of Favoured Races in the Struggle for Life". For more than 20 years Charles Darwin, for it is he of whom we speak, had been collecting facts bearing upon the formation of breeds of domestic animals and plants and quickly saw — to use his own words — "that selection was the keystone of man's success" — but how such selection could be applied to organisms living in a state of nature remained for some time a mystery to him. Understanding came whilst reading an essay by Thomas Malthus on "the principal of population" that stated that under certain circumstances favourable variations would tend to be preserved and unfavourable ones destroyed with the consequent formation of a new breed. Darwin was not the first one, of course, to propound such a theory but because he provided a scientific explanation of how evolution occurred and did this without reference to miraculous intervention or unfounded fancy, he succeeded in making the theory acceptable where others had failed. In fact Darwin hedged his bets a little and in his great work he introduced more than one partial explanation of evolution and used ancillary hypotheses such as the inheritance of acquired habits and indeed in later editions of his book published in his declining years he fell back on this and other similar Lamarkian arguments. Darwin, of course, had none of the cytological information we have available to us and even the work of Gregor Mendel, who was a contemporary of Darwin, was unknown at that time. We cannot criticise Darwin then for his unnecessary (to us) retreats into such ambiguities. However, his concepts that evolution is brought about by the interplay of the three principles of variation, hereditary and the struggle for existence is well understood and accepted today and Darwin would have no problem in recognising his theory embodied in today's accepted concepts although I imagine he would be wide eyed to encounter even the mathematics of the Hardy Weinberg equilibrium let alone the complexity of today's cellular biology. Heaven knows what he would think of DNA probing.

Now the subject of our deliberations today is not Darwin or his theory of evolution — that is but the parable from which I want to draw out some lessons for Medical Technology and Medical Technologists in New Zealand. Bear, however, with Darwin for one more brief moment. In essence his theory says that species change with time and form new species because

i) the environment is spatially heterogenous and changes with time

ii) populations are genetically variable

iii) more individuals are born than can survive, since environmental resources are not infinite and therefore there is a struggle for existence

and iv) the individuals that do survive are the ones better adapted to the existing environment.

Having more than adequately demonstrated I am neither geneticist nor biologist let us now turn to Medical Technology in our country, which may be perceived by many to be struggling to survive and examine it so far as is possible under each of the headings of Darwin's theory bearing in mind that the categories will not fit into a totally compartmentalised structure but will tend to run together.

Firstly, the environment is spatially heterogenous and changes with time

In evolutionary terms perhaps the greatest change that has been seen environmentally (apart from our own present disastrous efforts) is the basic climatic one which in turn has led to all sorts of other changes such as new predators.

In Medical Technology terms I guess we can also refer to 'changes in the climate'. Over the last five years we have had in our country a government committed on the one hand to monetarist policies and on the other to long espoused ideologies. These have not been the happiest of bedfellows (perhaps the understatement of the year) but nevertheless enormous changes in the social fabric of our nation have been evident and health has not escaped these changes. The formation of so called autonomous Area Health Boards which have had considerable financial constraints placed on them, together with the government's intention to create what was described in Britain as a National Health Service rather than the old National ILL Health Service is creating a climate necessitating change at a bewildering speed. And along with that change is apprehension and unease for all sections of the health care team including medical technologists. Not only is there concern for the security of jobs but there is an apprehension among some that their training has not fitted them for newly created positions which in the past were clearly the province of medical technologists. I venture to add that we have not seen the last of the apprehension that these

climatic changes will bring and we may well find that as the government translates its preventive health policies into action even moral dilemmas will arise and indeed in a rather obtuse way we have seen this already with AIDS testing procedures.

But other climate changes have been heralded, some fairly specifically in our own area. *Deregulation* was mooted and though the dentists removed at least some of the teeth of that proposal, stumps remained which will mean we will not see what our new Prime Minister described as "protected coteries" existing in the future. It is doubtful if our registration regulations ever conferred much protection on us, let alone on the public, but demonstrably in the future pleas of illegal practice will fall on increasingly deaf ears. Picking your way through pretty girls behind their instruments for estimating cholesterol, glucose, uric acid, hair tonicity and skin elasticity may well be your permanent lot as you walk your local mall corridors.

Devolution, the other in-word, will similarly affect us. No longer will hand-outs and subsidies prop up our education and examination systems and to those who have already felt the sting of increased registration and examination fees I can only offer commisserations and the cold comfort that you are not the only ones affected. However, devolution is not about money only. After several years of frustrating delays and indecision we have finally had regulations gazetted which in terms of devolution are a quantum leap forward. No longer do we have to overcome the Department's inertia, or wait for ministerial pleasure or vice regal assent to change the requirements for qualification, or the course of training, or the content and conduct of examinations. The destiny of these matters now resides where it properly belongs — in the hands of the profession itself. In evolutionary terms it's as if the Ice Age disappeared over-night!! It is over to us to use this change responsibly and to our advantage.

In truth, if what I had said up to now was fable then the last statement is almost pure fancy.

The push for changed regulations began over two years ago and has been frustratingly delayed in the Department for a number of reasons. At the last M.L.T.B. meeting in early July we were assured they would be passed by the 28th August. Because I have never fallen from innocence, my naivety accepted this and I wrote this part of the address on that basis.

A ring to the Department two days ago shattered the illusion! — The proposals had not even left the Minister's desk. However, by Monday evening they had been handed to the Minister's economical adviser!! Progress indeed!! However, I am pleased to announce that last night around 7 o'clock I received a call from the Department to say that the Minister had signed them and sent them for final drafting and presentation to the Cabinet Committee.

Secondly, populations are genetically variable

In Darwinian terms evolution is change in gene frequency and is a property of populations not individuals and results from the combined action of mutation, migration, selection and chance fluctuations. In medical technology terms we can, I believe, without stretching typology too far see some valid comparisons. In 1946 I joined the staff at Auckland Hospital as a *bacteriological* cadet and the final examination was for a certificate in bacteriological techniques and this showed where the early emphasis had been. The Institute took as its logo a microscope and in so doing copied other countries. The years have seen the emergence, dare I say evolution, and growth of other disciplines although I hestitate to call haematologists and biochemists mutated microbiologists. Now, whilst mutations in nature may sometimes be lethal, I personally see the emergence of these groups and their growth into strong disciplines attending to their own needs as something good and something to be encouraged. What does sadden me is when I hear talk of these groups being, not a population within the species of medical technologists, but a separate species on their own. In so doing they enhance the chance of becoming predators one of the other, and also becoming vulnerable to the attention of other potential take-over groups. I strongly believe that medical technology and medical technologists as well as the separate disciplines will be greatly the poorer if the desire of some to split off and become separate organisations is followed.

If we follow the model of nature we see that outbreeding tends to increase heterozygosity and this mostly enhances fitness. And it is fitness not fatness which counts in the struggle for survival.

Talking of outbreeding leads me to another point that I would like us to examine in some detail today.

Let me read you a report that appeared in the Herald earlier this month:

"JUNIOR DOCTOR SKILLS FOUND LACKING

Emergency care skills of junior doctors are poor and fail to meet basic life support standards, a Wellington study has revealed.

Major deficiencies in the doctors' provision of ventilatory support, drug therapy and their use of resuscitation equipment were identified..... Such inadequacies "might just be the tip of the iceberg," one of the paper's authors ..... said last night. 27 doctors in their pre-registration year who were tested in resuscitation skills failed to reach the basic life support standards of the American Heart Association. ..... They performed their practical skills on manikins but all had clinical experience of resuscitation ..... Studies of real resuscitation efforts had revealed similar shortfalls. "In several cases, cardiopulmonary resuscitation was being incorrectly performed either by nursing staff or junior medical staff at the time of arrival of the cardiac arrest team."

All the first-year postgraduates who took part in the study failed to meet the basic lifesaving standard, taught to the public.

Dr Lum said the study proved doctors were unable to retain emergency lifesaving techniques more than one year after receiving theoretical and practical training.

"Resuscitation training is only part of this problem."

"All the studies have shown so far that doctors, nurses or anyone need to have revision and a test once a year to keep skills up."

Dr Lum said hospital and area health boards failed to provide .... opportunity to take part in training and refresher courses.

"Every doctor should be given lots of opportunities by their employer to go out and develop their skills."

N.Z. Herald 14.8.89

Two days later a report regarding the effect of a new law on police was printed:

"POLICE TO SHAPE UP — OR ELSE

Police officers will be able to be sacked for incompetence under a proposed new law. ..... the Commissioner of Police has warned police staff that incompetence will become grounds for dismissal once the bill becomes law. ..... the Commissioner of Police said it was appropriate that incompetence be grounds for dismissal as the police must perform well and have increased organisational and individual accountability. ....." *N.Z. Herald 16.8.89*

I think we are looking at an area where we have been dilatory — that of post qualification or continuing education. I am not talking about the availability of such education, where I believe the Institute has a creditable record, but the auditing of ourselves to ensure that all our practitioners are up to

standard. Some of our colleagues in the health professional team (notably the nurses) have stolen a march on us here and we should not be too proud to learn from them and while not slavishly following them at least be prepared, as it were, to add to our gene pool and thereby enhance our survival chances. I know that there are those who would abrogate this responsibility to the employer. I don't agree. The employer, whilst he may have motivation, does not have the skills, knowledge or importantly the dispassionate judgement to perform this task.

When the M.L.T.B. issues an annual practising certificate to a registered technologist it takes *NO* cognizance of the current competency of the practitioner. I hold a current A.P.C. and presumably if I performed glucoses in the local mall no one would complain to the department and yet when a non-registered lass is trained in this specific technology and performs in the local chemists, I, as chairman of the M.L.T.B. receive letters asking for that lass to be prosecuted! I know whose result I would sooner trust. We must stop bleating and inform the public where the competency really lies, but before we do that we have to prove our fitness and I believe this is a challenge that lies properly with the Professional Body — our Institute rather than with a registration board. I don't minimise the task. The Americans with their Continuing Education Unit System I feel fail. Attending a lecture is different from demonstrating competency and fitness.

The Institute's new Fellowship programme is an excellent start but the challenge is to cover the other say 25 to 30 years of a technologist's working life. It is a formidable task but it must be done. I have a feeling the answer may be an extension and modification of the competency testing that the Board will introduce next year for qualifying technologists. The public have a right to expect competency — we have an obligation to provide it.

Thirdly, more individuals are born than can survive since environmental resources are not infinite and therefore there is a struggle for survival

In nature *predation*, where one group is a source of energy and matter for another, and *competition* where some environmental resource is too scarce to support two populations are the major factors in regulating population size.

In the heady days of the 50's one Douglas Whillans extrapolated the growth of medical technology and concluded that by the mid 21st century there would only be medical technologists in New Zealand looking after sick medical technologists.

An extrapolation today might lead us to the gloomy prognostication that by that stage we may be extinct!! Such a fate is not inevitable but it will require effort on our part to avoid it.

What I say now will not be popular in all areas but it must be faced.

The Whillans extrapolation was based on the explosion in laboratory testing and the consequent staff explosion. Medical technology was not prepared for that explosion and expediency saw the introduction of laboratory assistants. Now 20 to 30 years on we have a group who feel they are disadvantaged and seek to redress that disadvantage.

Now I have to say that I believe the M.L.T.B. has not only been aware of this but they have constructively sought and gained regulation changes to allow this group to enter medical technology. However, I have also to say that while I draw breath on that Board I will oppose with all my vigour the replacement of basic sciences and competencies with expired years of experience together with *some* competencies. My reasons for such opposition are twofold — first I do *not* believe it is in the best interests of those who use the profession (that is your patient and the physician) and secondly that it will allow the outside predators who value savings more than service to eliminate what they perceive as the expensive part of the dimorphic population. And if you think I am unduly pessimistic I invite you to look at the Management Advisory Service's "Review of Pathology Services Staffing" [The Mowbray Report] in Britain. For the first time, to my knowledge, Britain has in its laboratory support grades instituted a Medical Laboratory Assistant designated M.L.A. But within the report there is also a Medical Laboratory Analyst who is a medical laboratory Scientific Officer — also designated M.L.A.

Throughout the report M.L.A. appears and one is never quite sure to whom it refers. Perhaps it would be cynical to think that the waters have been deliberately muddied to cause confusion. I quote this example to show the way in which predation can begin. This is not an attack on Laboratory Assistants (I think my support at M.L.T.B. level to open registration paths to them proves that I am not opposed) — it is a plea not to present the predators with opportunities to remove technologists which I am certain will be to the detriment of *both groups.*

Fourthly, the individuals that do survive are the ones better adapted to the existing environment

An increase in genetic variation results in increased potential for improvement in population fitness and this in adaptation to the environment. *Selection* of favourable genotypes under competition allows that to happen.

This is really the heart of today's address and already I have been sounding the call — adapt or perish; fitness not fatness is our salvation.

I do briefly want to mention, however, two other things.

One is the change that will be seen next year in examination procedure for examinations under the aegis of the Board. The specialist examination will disappear from the Board's calendar and appear in the Institute's. And the practical examination will be replaced by competency testing achieved in the laboratory, and with the abolition of the old practical examination the written paper at the certificate level will now be two papers. Such moves will not receive everyone's acclamation but they are responses to environmental changes — the demand to justify registration requirements and the challenge to meet accepted educational standards regarding competency. It will mean changes in your laboratories but not violent ones as it is really a formalisation of what you have done almost intuitively for years in assessing your trainees' competence to undertake a procedure or duty.

In conclusion I must make at least passing reference (and that is not to belittle its importance) to the two either proposed or commenced new courses.

In 1978 we had plans for a 4 year Diploma Course replacing the Parts II and III level examinations. In 1979 financial pressure pushed this scheme on to the back burner (and incidentally I think the flame was extinguished). Now we have a new Diploma Course started in Auckland (with hopes that it will attain baccalaureate recognition) and a Bachelor of Medical Laboratory Science through Otago University which I understand has a probable commencement date of 1992.

In 1980 the then Hospital Boards' Association had declined to support this sort of course on the basis of cost, unnecessarily high training and flow on effects to other health groups.

I am delighted that the nettle has now been grasped by the Institute and technologists and these courses are being started. In terms of our survival, I believe they are essential. They are perhaps the best single example of our desire to adapt and survive. They will be costly — both in dollar terms and in commitment — and as such will tend away from fatness but move significantly towards *fitness.* They call for, nay demand, our fullest support and I hope they will get it.

They both have a registerable qualification as their goal and I see no reason why they will not be recognised as such by the M.L.T.B. They may well change the sort of person seeking training in medical technology (especially as they become a cost to the trainee rather than the employer) but I am convinced they will not (as some gloomy prophets aver) leave us with no applicants.

When I was asked to present this address I pondered on what to say. Old doddery people have two common themes. The "When I was a boy" theme and the grand "Quo Vadis" theme; the "Whither Technology" — "What of the Future" — "Where will we be in 10 years" addresses. I rather determined not to fall into this trap but after preparation I guess have done just that. It was a sort of Scylla and Charybdis choice — to wander in the byways of pontification and thereby prove the old age and dodderiness or to bravely attempt some technological theme and prove ignorance? Attempting a little of both I have probably proved all!

And so we have meandered through parable, through mixed metaphors, through allusion, illusion and maybe even delusion, and through exhortation and perhaps sermonising. Despite it all I hope I have made my point. Our environment is changing and we must adapt to survive in it. Man, among all known species has the ability to aid or thwart his own evolution consciously. We must believe that of medical technology and work to achieve it. Fitness not fatness must be our watchword. The alternative is to ignore evolutionary evidence and seek a creator god of medical technology to whom we can address ourselves not blasphemously but in supplication — god help us!!

Editors Note: The regulation changes mentioned were gazetted on 2 October 1989.

Effect of Race and Weight on Plasma Urate : Implications for Laboratory Reference Intervals

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From a paper presented at the Wellington Branch NZIMLT Seminar, May 1989. **Correspondence to R. Siebers, Department of Medicine, Wellington School of Medicine, P.O. Box 7343, Wellington South.**

Abstract

Plasma urate was significantly higher in Maori men ($\bar{x}$: 0.420 mmol/L; S.D. : 0.073) than in non-Maori men ($\bar{x}$: 0.375 mmol/L; S.D. : 0.055). Weight was higher in Maori men, and weight was positively associated with plasma urate (r : 0.373; p : 0.0001). After weight adjustment a statistically significant difference in plasma urate between Maori and non-Maori men remained. Plasma cholesterol was similar for both races but was positively associated with age (r : 0.558; p : 0.0001) and with diastolic blood pressure (r : 0.268; p : 0.0065). The latter association was due to age as shown by multiple regression analysis. Plasma Na^+, K^+, urea and creatinine were similar in both races. We conclude that race and weight are variables that may have to be taken into consideration when establishing laboratory reference intervals for certain biochemistry parameters.

Keywords

Race, weight, reference intervals, urate, epidemiology.

Introduction

The effects of sex and age on certain biochemistry parameters are well known. Surprisingly little attention has been given to the effect of race thereon. In the past decade only a few studies have addressed this potential confounding factor. Thus Black et al [1] found higher creatine kinase levels in healthy blacks compared to whites. Laskarzewski et al [2] in their study in black and white children found predominant racial differences for alkaline phosphatase, AST and urate. Carmel et al [3] found decreased total bilirubin values in blacks compared to whites, even in disease states affecting bilirubin levels.

In this paper we present racial differences in plasma urate between healthy Maori and non-Maori men. Furthermore we show an association between weight and plasma urate. These findings may have implications for laboratory reference intervals and in epidemiological studies for potential disease markers.

Methods

Apparently healthy Maori men with at least one parent of Maori descent (n=48), and non-Maori men of white European descent (n=57) were recruited from various Mormon Churches in the Wellington region, the Porirua Police College, and staff of the Wellington Hospital Laboratory and Wellington School of Medicine as part of an ongoing study of membrane sodium transport in hypertension. The majority of subjects were non-smokers, had a nil to moderately low alcohol intake, and were not on any medication. Age and weight were recorded, and blood pressure measured after 5 min in the sitting position with a Hawkesly random sphygmomanometer.

Blood was obtained by venepuncture into a heparinised Vacutainer™ tube and plasma separated within one hour after venepuncture. We have previously shown that blood stored at 4°C for one hour has no effect on routine biochemistry parameters [4]. Plasma was analysed for Na^+, K^+, urea, creatinine and urate on a SMA™ II using standard Technicon methodologies except for plasma urate which was with a ferric phenanthroline reduction method [5]. Plasma cholesterol was analysed on an Abbott VP™ with an enzymatic method (Bio-Merieux™).

Statistics were performed using the Statsview™ package on an Apple McIntosh™. Due to non-equal group size and non-Gaussian distribution a Mann-Whitney U test was performed to determine significant differences in biochemistry parameters between the two races. A p value of < 0.05 was deemed statistically significant. Comparison of age, weight and blood pressure with biochemistry parameters was by least square linear regression analysis.

Results

Age and blood pressure results were not different between the two races, but weight was higher in Maori men, which is in agreement with previous published results [6]. Table 1 lists these as well as the biochemistry parameters obtained. Two and a half to ninety-seven and a half percentiles were constructed for all parameters in both races combined except for plasma urate where, because of a significant racial difference, separate reference intervals for Maori and non-Maori men were constructed. These are presented in table 2. Weight was positively correlated with both systolic (r : 0.297; p : 0.0028) and diastolic (r : 0.278; p : 0.0054) blood pressure; and with plasma urate [Figure 1]. Age was positively correlated with diastolic blood pressure (r : 0.433, p : 0.0001) and with plasma cholesterol (r : 0.558; p : 0.0001). Diastolic blood pressure was positively correlated with plasma cholesterol (r : 0.268; p : 0.0065).

As body weight was significantly different between the two races and was correlated with plasma urate, an analysis of co-variance was done to determine if a significant racial difference in plasma urate remained after correction for body weight. The mean difference in plasma urate before weight adjustment was 0.045 mmol/L, p : 0.0005 and after weight adjustment was 0.036 mmol/L, p : 0.0075.

Neither age, weight nor blood pressure (within their respective reanges) were correlated with plasma Na,K, urea or creatinine. Neither was systolic or diastolic blood pressure

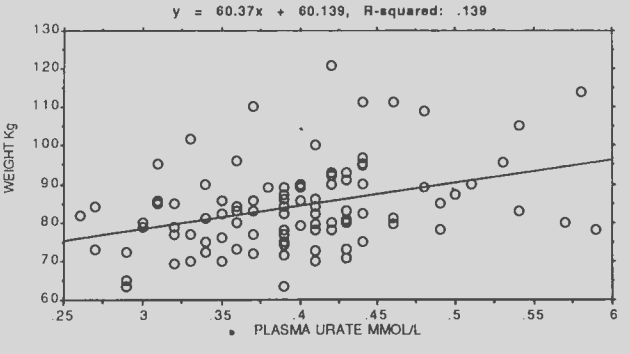

FIGURE 1.PLASMA URATE v WEIGHT

Table 1: *Mean (± 1 S.D.) results of Maori and non-Maori men.*

		Maori n=48	Non-Maori n=57	p*
Na^+	mmol/L	142 (2.1)	142 (1.9)	n.s.
K^+	mmol/L	4.36 (0.31)	4.23 (0.36)	0.0512
Urea	mmol/L	5.9 (1.2)	5.6 (1.1)	n.s.
Creatinine	mmol/L	0.104 (0.011)	0.101 (0.011)	n.s.
Cholesterol	mmol/L	5.3 (1.19)	5.5 (1.01)	n.s.
Urate	mmol/L	0.420 (0.073)	0.375 (0.055)	0.0010
Age	years	31 (9.0)	33 (9.7)	n.s.
Weight	Kg	88.0 (12.5)	81.0 (9.0)	0.0054
BP Systolic	mmHg	128 (15.4)	129 (16.5)	n.s.
BP Diastolic	mmHg	77 (14.7)	81 (13.8)	n.s.

* Mann-Whitney U test. n.s. = not significant at p 0.05.

Table 2: *Biochemistry reference ranges.*

		2.5-97.5 Percentiles	n (Maori + non-Maori)
Na^+	mmol/L	138 — 145	105
K^+	mmol/L	3.7 — 4.8	105
Urea	mmol/L	4.1 — 7.7	98*
Creatinine	mmol/L	0.087 — 0.117	105
Cholesterol	mmol/L	3.9 — 6.9	105
Urate	mmol/L	0.29 — 0.44	Non-Maori: 57
Urate	mmol/L	0.32 — 0.54	Maori: 48

* 7 missing values (5 Maori, 2 Non-Maori)

or with plasma urate. Plasma K^+ just failed to reach a statistically significant difference between Maori and non-Maori men (mean difference : 0.13 mmol/L; p : 0.0512). The difference is small and of no clinical significance.

Discussion

Little is known about the effect of race on normal biochemistry parameters apart from creatine kinase [1], urate [2,7,8], alkaline phosphatase [2], AST [2] and total bilirubin [3]. True racial differences in biochemistry parameters can have implications for laboratory reference ranges and epidemiological studies. Prior [7] and Gibson et al [8] have previously shown that urate levels are higher in the Maori. Prior [7] concluded that there is a strong genetic component to higher urate values in the Maori; while Gibson et al [8] showed that hyperuricaemia in Maori men is due to reduced renal clearance of urate.

Our results of an incidence of 27% of asymptomatic hyperuricaemia (>0.44mmol/L) in a carefully chosen group of Maori men (non-smokers, low alcohol intake, no medication and apparently healthy) is similar to Gibson et al's [8] findings of 23% asymptomatic hyperuricaemia in Maori men. Comparatively, only 5% of non-Maori men were hyperuricaemic in our study. Given the higher incidence of cardiovascular mortality and morbidity in the Maori [6], and the suggestion that raised urate concentration may be an epidemiological indicator of cardiovascular disease independent from obesity [9]; our results together with those of others [7,8] suggest that it is desirable for laboratories to have separate urate reference intervals based on race as well as known sex and age differences. Even when weight differences between Maori and non-Maori men were taken into consideration, a racial difference in plasma urate levels remained. Alternatively it would suggest that the non-Maori reference intervals for plasma urate should be adopted for the whole population and that subjects with a plasma urate of >0.44mmol/L be further investigated.

It is known that with increasing age, the cholesterol level rises. Even within the narrow age range of our study this was apparent. Cholesterol was associated with both age and diastolic blood pressure in our study, while age and diastolic blood pressure were also strongly correlated (r : 0.433; p : 0.0001). Multiple regression analysis showed that the correlation between cholesterol and diastolic blood pressure disappeared when age was taken into consideration. This emphasises the fact that a significant correlation does not necessarily prove a cause-effect relationship as age was the confounding variable in the association of blood pressure with cholesterol.

In this study we have shown that race and weight are confounding variables that may have to be taken into consideration when determining laboratory intervals. These findings also have implications for epidemiological studies to determine possible markers or indicators of disease states between racial groups. From our study, and previous studies showing a higher incidence of hyperuricaemia in Maori men, we would suggest that the non-Maori reference intervals for plasma urate be adopted. Subjects, irrespective of race, with a plasma urate of >0.44mmol/L should be further investigated or monitored periodically over time.

Acknowledgements

We wish to thank the many volunteers participating in this study, and Helen Bark for typing the manuscript. This study was supported by the National Heart Foundation of New Zealand.

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The National Diploma in Medical Laboratory Science

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Abstract

The Auckland Technical Institute and the Auckland Area Health Board have introduced a National Diploma in Medical Laboratory Science. This is a four year course, with alternate blocks of theoretical teaching and practical training which will lead to registration.

Keywords

training, Diploma, registration

Introduction

In common with all professions, education is the foundation on which medical technology builds its credibility and reputation. This article explains how the staff of the Auckland Hospital Board laboratories and the Applied Science Department of the Auckland Technical Institute evolved the National Diploma in Medical Laboratory Science. The course was designed to give a comprehensive theoretical education as well as a sound practical training.

New Zealand Certificate in Science (NZCS)

The first step towards a recognised qualification from a teaching institute was in 1971, when the New Zealand Certificate in Science (Medical Science) was introduced. The subjects in this course are an amalgam of the subjects designed for students in other vocations, viz., Chemistry, Laboratory Technology and Biochemistry, together with Human Biology and Medical Laboratory Practice. The latter was designed specifically for hospital laboratory workers. After completing the NZCS, students are required to do two (soon to be one) years' work and study before registration.

The disadvantages of this course are well known, but it is worthwhile itemising a few of them as they influenced our thinking when we designed the National Diploma in Medical Laboratory Science.

The subjects Chemistry, Laboratory Technology and Biochemistry are designed for students in all vocations and the first two have heavy industrial bias. The necessity to maintain a course that has input from various interest groups imposes an unwelcome rigidity on the syllabi. New areas of interest may take several years to introduce.

The course lacks any material in cytogenetics or virology. Immunology is dealt with in a haphazard fashion and histology is only to a small extend.

The course does not lead to registration. Further study (and training) is required after the student completes an NZCS. The student has to endure two separate education systems to reach qualification.

In addition, the travelling for part-time attendance was placing an intolerable burden on hospital laboratories, the Regional Blood Centre and the students. It was an attempt to remedy this problem that led to the creation of the National Diploma.

Diploma Development

In 1987, the staff of the Auckland Hospital Board approached Auckland Technical Institute to see if there was an alternative to part-time attendance at classes. It was agreed that we could place those students into their own classes which would be taught as full-time blocks.

The idea of a completely new course followed almost immediately. Harry Hutchings, speaking as Chairman of the Authority of Advanced Vocational Awards (AAVA), said that we had enough students to create a course that AAVA would recognise. The question of consulting the rest of the country was considered carefully. We realised that Auckland had a reputation for not consulting the rest of the country but we were also aware that previous schemes had foundered and part of the reason for this was the difficulty in getting a consensus throughout the country. It was decided that if we designed a course that suited local needs it was likely to be useful for other centres.

The first decision to be made was whether the course should be full-time or block. Medical Technologists in New Zealand have always been proud of the on-site training that students receive. This is one of the good features of the current NZCS programme. It was decided that we should have a block or sandwich course which is quite common overseas, so the student would have alternative terms at the Technical Institute and the hospital. This allows the student to concentrate alternately on theoretical study and work experience. The next decision was the length of the course. It was agreed that five years was too long and we should work to a shorter time. It was also decided that the Diploma Course should conform with the protocol approved by the English body, the Council for National Academic Awards. This requires two years full-time study or its equivalent and at least one year of supervised work.

It was felt that two years work experience would be required to give an overall experience of laboratory work, including blood bank, and time to acquire sufficient skill to reach registration standard in one subject.

The Diploma students have their work experience supervised and recorded in log books which are similar to those to be introduced in 1990 for Certificate level students. These are based on the concept of mastery learning, which is dependent on the belief that, given sufficient time, virtually all students can and will learn most of what they are taught. This is the approach that is given in driving tests and tests for aeroplane pilots.

Course Structure and Content

The course is four years long. During this time, the student spends 6 terms at the Technical Institute and 6 terms and the summer at the hospital. In the first year, the student spends terms 1 and 3 at the Institute and in the second year, term 2 at the Institute. The cycle is repeated in years 3 and 4.

In the first year, the students attend for 2 blocks of fourteen weeks. In the first twelve weeks of each block, most of the study is devoted to the basic sciences, viz., Chemistry, Physiology, Laboratory Technique and Biochemistry. These subjects are taught to a similar standard to those in the current NZCS syllabus.

In addition, students are given a theoretical introduction to Microbiology, Haematology and Clincal Biochemistry, and

Figure 1 : *Course Structure*

	Year 1	Year 2	Year 3	Year 4
Term 1	Technical Insitute	Hospital	Technical Institute	Hospital
Term 2	Hospital	Technical Institute	Hospital	Technical Institute
Term 3	Technical Institute	Hospital	Technical Institute	Hospital
Summer	Hospital	Hospital	Hospital	Hospital

Figure 2 : *Subject Hours*

	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
Human Biology	144					
Chemistry	72	72				
Laboratory Technique	96	66	30			
Tutorial	24	24	24	12	12	12
Humanities	24	24	24	24	24	24
Hospital Orientation/Training	60	60	60			
Biochemistry		144				
Introductory:						
Microbiology)						
Haematology)		30				
Clinical Chemistry)						
Immunology			60	30		30
Immunohaematology			72			
Virology			30			
Cytology			30			
Histology			30	24		
Cytogenetics			30			
Management/Computer Studies			30		36	
Pathophysiology					18	24
Certificate Subject 1				270		
Certificate Subject 2					270	
Certificate Subject 3						270
TOTAL HOURS	420	420	420	360	360	360

some study in Humanities. Humanities involves the following subjects: Sex, Gender and Society; Science, Technology and Social Responsibility; Personal Identity and Community; Human Communcations; Decision by Design; the Organism and the Ecosystem.

In the final two weeks of each block, the students study the laboratory skills for one of the following disciplines: Microbiology, Haematology or Clinical Chemistry. This is titled Hospital Orientation. Immediately after this block, the student is placed in the department for which s/he has studied in the orientation two weeks.

In the second year, the students attend for one fourteen week block in the middle term. This block is devoted to a preliminary study of all the subjects to which the student has not yet been exposed: Immunology, Immunohaematology, Virology, Cytology, Histology, Cytogenetics. At the end of this block, the student will have an appreciation of virtually all the departments in the hospital laboratory system. This has two advantages; firstly, the student will be able to appreciate all areas of laboratory work and know what diagnostic tools are available and secondly, s/he will be able to make a reasoned choice in which subject to concentrate in the final two years of the course.

The last two weeks of the third block are devoted to the final Hospital Orientation Training session. At the end of the second year, the students will have completed three Technical Institute blocks covering basic sciences and introductory study of nine laboratory departments, and had three months' experience of each of Haematology, Microbiology and Clinical Biochemistry. At this time, the student will, in consultation with the employer, choose which certificate subjects s/he will study and which will be the major study area.

The bulk of time in each of Blocks 4, 5 and 6 is spent studying a certificate level subject. Approximately two hundred hours will be devoted to lectures, laboratories and tutorials and about seventy hours will be involved in a project which is directly related to one or more aspects of the syllabus. This will reinforce the theoretical aspects of the course and will start to teach the student to work on his/her own initiative. In addition, the students will study Immunology, Pathophysiology, Histology and Management Skills during these blocks.

The work experience for these certificate level subjects will depend on the choice made by the student in consultation with the laboratory.

One subject will involve laboratory experience for about one year. We refer to this as the major subject. The second subject will require laboratory experience for one term and the final subject will not have any laboratory experience. Thus, the student will have a registration level subject and two others which could be brought up to registration level after extra laboratory experience.

Future Education Trends

Tertiary education in New Zealand is going through a profound change. AAVA and the University Grants Committee will be abolished. Their function will be taken on by a new body, the National Education Qualification Authority (NEQA). This body will be able to accredit particular courses at polytechnics as degree courses. It is our intention to apply to have this course as a degree as stated above. It has been designed to meet the requirements of the British equivalent of NEQA.

Polytechnics will only be permitted to offer degrees if they can show that they are carrying out research in this area. A

small amount of research is currently in progress in the Applied Science Department at ATI and we have started to plan a research programme.

At this time, hospital laboratories have found it difficult to gain any support when they have had research or investigation topics that require time and/or money to carry to completion. This problem will become more acute with the current restraints being placed on health spending and staffing. The introduction of research programmes in the education section should be of benefit to the hospital and to the Technical Institute. This will have the effect of bridging the gap between the education centres and the workplace as it should be possible to encourage the participation of hospital staff in this work.

So far, our attention has been concentrated on the Diploma course. Obviously our next step is to consider the development of courses for laboratory assistants and a close look at the requirements for specialist courses. Although these will not be a pathway to registration in the future, there is an undoubted need for such courses.

This should create a centre for teaching all components of Medical Laboratory Science and will be an education resource for the profession in all parts of the country.

Acknowledgements

I would like to thank Peter Huggard and Brian Cornere for valuable advice.

Tinea Nigra: A New Zealand Case Report

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Address for correspondence: Dr D Greig, Dermatologist, Auckland Hospital, Auckland.

Keywords
Dermatophytosis, *Exophiala werneckii,* tinea.

Case Report

C.W, a female 23 year old office worker, presented with a pigmented skin lesion on the medial aspect of the right foot, which had been slowly growing in size for at least two years. The patient had never travelled outside New Zealand. Examination showed a patch of dark brown-green, discoloured skin, a flat nonscaly macule, on the inner aspect of the right foot just above the instep.

Mycology

Direct microscopic examination of the potassium hydroxide preparation of the skin scapings showed yellow-brown septate hyphae. Culture on Sabouraud dextrose agar after two weeks incubation at 30°C yielded 3mm brownish-grey moist yeast-like colonies composed primarily of two celled cylindrical to spindle shaped yeast-like cells with tapered ends and a central cross wall. With age, short aerial hyphae developed and the colony developed a green-black colour. Slide culture on potato dextrose agar showed an occasional distinct conidiphore (annellophore) with conidia at the tip of each annellide and many free yeast-like cells producing conidia, some showing distinct annellations. The isolate was provisionally identified as *Exophiala werneckii (Phaeoannellomyces werneckii).* This was confirmed by D. Parr, Auckland Hospital.

Discussion

Tinea nigra is a superficial, painless fungus infection of the skin, characterised by pigmented macules (green, brown or black) usually found on the palms of the hands. This patient had her lesion on a less common site, the side of her foot. The causative agent, *Exophiala werneckii (Phaeoannellomyces werneckii)* was identified (1). C.W. was successfully treated with Canesten (registered trademark of Bayer Pharmaceuticals) Cream, the lesion resolving within three weeks.

The condition has largely been found only as a tropical skin disease in patients who are residents in, or who have travelled to Central and South America, Africa and Asia. This case demonstrates that this fungus infection can be acquired in New Zealand. Approximately seven cases of Tinea nigra have been reported in New Zealand in the last 12 years (2). Most of these individuals had visited or lived in the Pacific Islands. One female had been on a Hauraki Gulf Island, but not outside New Zealand.

This case has been reported to encourage recognition of this superficial fungus infection. Correct diagnosis is important as a number of individuals with tinea nigra are thought to have other conditions, particularly pigmented naevi or maligant melanoma.

Tinea nigra has responded to a number of different treatments including Whitfields ointments and Imidazole topical preparations. Griseofulvin is not an effective drug.

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The Pacific Way

Projects in the Pacific

Update on Malaria

Modern advances in medicine have led to the development of treatments and vaccines but malaria is by no means conquered yet. A late 1970 study estimated that 120 million people worldwide were affected by malaria — and the disease develops resistance to new drugs almost as quickly as researchers can develop them.

The Sydney-based Army Malaria Research Unit (ARMU) is currently researching long term control methods for mosquitos and the development of effective prophylactic and treatment regimens. Older drugs to which Falciparum malaria proved resistant are also being examined to see if their efficacy can be improved by combining them with other drugs.

Vaccine researchers are also finding the parasite difficult to control. Medical scientists at the Walter and Elisa Hall Institute in Melbourne are attempting to develop a vaccine using antigens in the asexual stage of reproduction, hoping that one or more could be incorporated into a vaccine. Dr. Robin Anders, Head of the Institute's Malaria Laboratory, says his team his attempting to produce an antigen using recombinant DNA technology: the teams research partner, the Queensland Institute for Medical Research, is attacking the problem through the use of a synthetic peptide.

Research in other countries is examining the sporozoite — the ineffective stage of parasite development — and the production of an immune response in the mammal host to block the development of the sexual stages in the mosquito.

Australian vaccine research involves a budget in excess of A$5 million. It is supported by a consortium comprising the Hall and Queensland Institutes as research partners, with Federal Government backing. Encouraged by promising research being conducted around the world, the United States Agency for International Development has decided to fund the establishment of a test site for the vaccine in Papua New Guinea. It is hoped the first trial vaccines will be available for testing after the base study is completed in about four years time.

Marimed

Marimed is a private non-profit foundation in Honolulu, founded by Lonnie and David Higgins to help the people of Micronesia upgrade the quality of their health care programmes. By working with the social services and health agency personnel of the Marshall Islands on outer island field clinics, and by including Marshallese on its staff, Marimed has earned the support of Marshallese people and endorsement by Government officials.

The concept for the foundation grew out of the couple's experience during a five year cruise throughout the Pacific on their 29.5 metre schooner "Deliverance".

Lonnie, a medical officer, learned about tropical medicine through these experiences and began soliciting donations from U.S. pharmaceutical and medical supply companies. It was not long before "Deliverance" was transformed into a mini-medical ship. David, a corporate lawyer and first rate yachtsman tended to maritime matters while Lonnie concerned herself with medical activites. The couple devoted more and more time to maritime medicine (the term that led to "Marimed") until three years ago when they established their foundation and committed themselves full time to this project.

Marimed are currently rigging and outfitting a 47 metre top sail schooner, "Tole Mour", as a health service vessel. Equipped with modern medical equipment, the sailing ship's health care facilities will allow the medical team, composed of dentists, physicians, nurses and medical technicians, to render more than just rudimentary health care. The "Tole Mour" — meaning "gift of health and life" in Marshallese — will not be delivered until late next year. Currently the dental team can do little more than fill cavities, extract rotten teeth and apply protective sealants to childrens healthy teeth. "Tole Mour's" dental clinic will have an x-ray unit and other sophisticated dental instruments, making it possible to perform root canal operations, place crowns, fit bridges and perform surgical extractions.

At the Immunisation Clinics children are vaccinated against the usual childhood diseases — but the real problem is to keep the vaccines properly chilled. Health officials estimate that up to half the serum brought to the outer islands is ineffective due to improper handling and storage. The problem will be solved "when the ship arrives" as it will be possible to store medication in constant-temperature coolers.

Pap smears and tissue samples taken in the womens clinic are normally sent to Majuro for analysis, a cumbersome process involving special handling for the delicate specimen trays. "Tole Mour" will be equipped with a diagnostic laboratory where pathology results can be determined within hours, the medical team to follow up without delay.

Physical examinations in the field are rudimentary, conducted with only simple medical instruments. Patients requiring more thorough examinations are now being sent to Majuro: "Tole Mour's" two examination rooms and ear and eye clinic will make it possible to treat these patients on board.

Although Marimed's focus is on preventive medicine established by the Marshall Islands Health Ministry as a top priority, the Health Service vessel will be equipped to deal with acute illnesses and emergency situations with its hospital care capability, basic life support systems and surgical unit.

Marshall Islands — Home Gardening Project

The Marshall Islands (formerly a United Nations Trust Territory administered by the United States) are now self governing in "free association" with United States. The low lying atolls are scattered across 800,000 square kilometers of ocean area, 3,500 kilometers south west of Hawaii. In exchange for use of a key missile testing range in the Marshall's, the United States provides more than 50 million US each year in direct subsidies to the Islands.

Sweeping Westernisation coupled with a booming population has dramatically altered the once self reliant Marshall Islands. A profoundly disturbing feature of this change is malnutrition — unknown just a decade ago — and rejection of local foods in favour of costly imported goods.

The United Nations Childrens Fund (UNICEF) is supporting a special agricultural programme aimed at boosting self sufficiency and encouraging increased consumption of local foods to counteract the dependence on the United States these islands have acquired during 40 years of American control. On remote coral atolls, coconut, papaya and banana trees heavy with fruit sway with the afternoon trade winds; but kitchens are dominated by canned meats and rice, doughnuts and pancakes heavy with sugar. Local foods are valued less than imported goods. The home gardening project, funded by UNICEF was launched in 1985, focusing on the remote outer atolls. It began with families on a couple of small communities. Its goal is to increase the availability of local foods at the household level in an effort to discourage dependence on imported — and costly — processed foods.

UNICEF provides advice on plants and developing fertiliser

NEW ZEALAND INSTITUTE OF

MEDICAL LABORATORY TECHNOLOGY

EXAMINATION LIFTOUT

Specialist Certificate Regulations
Specialist Certificate Examination Application Form
Q.T.A. Regulations
Q.T.A. Examination Application Form
N.Z.I.M.L.T. Membership Application Form

The New Zealand Institute of Medical Laboratory Technology offers to medical laboratory assistants the qualification known as the Certificate of Qualified Technical Assistant (QTA) and to medical laboratory technologists the qualification known as the Specialist Certificate.

The Examinations Committee is based in Christchurch and all correspondence should be addressed to:—

The Secretary
Examinations Committee
Haematology Department
Christchurch Hospital
Private Bag
CHRISTCHURCH

NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY TECHNOLOGY SPECIALIST CERTIFICATE EXAMINATION

EXAMINATION SUBJECTS

The examination is offered in:

Clinical Biochemistry
Haematology
Histology
Nuclear Medicine
Cytogenetics
Microbiology
Immunohaematology
Medical Cytology
Immunology
Virology

PREREQUISITES

1. Candidates for the examination must have passed a Certificate Examination offered by the Medical Laboratory Technologists' Board or be granted an exemption by the Council of the NZIMLT.

2. Candidates must be financial members of the NZIMLT at the time of sitting the examination **and** be a financial member or have submitted a valid membership application form at the time of applying to sit the examination.

SYLLABUS

1. Copies of the syllabus are available from the Secretary, Examinations Committee, Haematology Department, Christchurch Hospital. A charge of $15 (GST incl) is made for each syllabus.

EXAMINATIONS

1. The examinations will be held annually during November.
2. Candidates must complete the application form and forward this, complete with examination fees, to the Secretary before the closing date. **No late applications will be accepted.**
3. Candidates must be financial members of the NZIMLT at the time of sitting the examination.
4. The examination consists of two written papers each of three hours duration.
5. To pass the examination candidates must obtain an overall mark of 50%.
6. The results of the examinations will be announced by the New Zealand Institute of Medical Laboratory Technology. Successful candidates will be awarded the NZIMLT Specialist Certificate in the appropriate discipline.
7. The candidate's script will be returned upon receipt of a written request by the candidate. No copy will be retained and no correspondence relating to the marking of the script will be entered into.

NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY TECHNOLOGY

Application to sit Specialist Certificate Examination 14th and 15th November 1990

SECTION A — TO BE COMPLETED BY THE CANDIDATE

Name: Mr / Mrs / Miss ..... (Surname) ..... (First Names)

Laboratory .....

Laboratory Address .....

.....

Examination Subject .....

Medical Laboratory Technologist Board Certificate Examinations passed:

Subject ..... Year Sat .....

Subject ..... Year Sat .....

EXAMINATION FEE: $450 (GST inclusive)

The full examination fee must be paid with the application.

SECTION B — TO BE COMPLETED BY THE PRINCIPAL OR CHARGE TECHNOLOGIST

"I certify that the above candidate will meet the requirements of the Specialist Certificate Examination"

Signed .....

Designation .....

Please state the name and address of the person responsible for receiving the papers and supervising the Examination in your laboratory or centre

Name .....

Address .....

.....

.....

APPLICATIONS CLOSE WEDNESDAY 31 JANUARY, 1990

Please forward application forms accompanied by fees to: Mr B. T. Edwards, Secretary, Examinations Committee, Haematology Department, Christchurch Hospital, Christchurch 1.

NO LATE APPLICATIONS WILL BE ACCEPTED

Special Note to Applicants
*If not already members of the NZIMLT applicants to sit this examination **must** submit a valid membership application along with this examination application.*

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NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY TECHNOLOGY CERTIFICATE OF QUALIFIED TECHNICAL ASSISTANT

EXAMINATION SUBJECTS

Clinical Biochemistry
Cytogenetics
General Certificate (see prerequisite 2)
Haematology
Histological Technique
Medical Cytology
Medical Microbiology
Mortuary Hygiene & Technique
Radioisotopes & Radioassay Technique
Immunohaematology
Immunology (Microbiology)
Immunology (Tissue Typing)

PREREQUISITES

1. Candidates for the examination must be employed as medical laboratory assistants in an approved laboratory and have worked continuously in the subject since 30 June two years previously or accumulated not less than two years practical experience in the examination subject.
2. Small laboratories which require their medical laboratory assistants to work in more than one subject can apply to the Committee for students to train for the General Certificate Examination.
3. A laboratory which requires a medical laboratory assistant to work in a narrow field may apply to the Committee for the student to train for a Special Certificate Examination (Note syllabus requirements).
4. Candidates for the Immunohaematology Examination must have completed not less than 320 hours and candidates for the General Certificate Examination not less than 160 hours in practical cross-matching of blood for clinical use.
5. Candidates must be financial members of the NZIMLT at the time of sitting the examination **and** be a financial member or have submitted a valid membership application form at the time of applying to sit the examination.

SYLLABUS

1. The syllabuses for all subjects (except Special Certificates) are available from the Secretary, Examinations Committee.
2. Medical laboratory assistants intending to train for a Special Certificate Examination must have a detailed syllabus prepared by the charge technologist and forwarded to the Committee for approval at least 6 months before the examination.

EXAMINATIONS

1. The examinations will be held annually during the month of May.
2. Candidates must complete an examination application form and forward this, together with the appropriate examination fee, to the Secretary before the closing date. **(NOTE: LATE APPLICATIONS WILL NOT BE ACCEPTED)**
3. The examination will consist of two written papers, each of two hours duration. Candidates for the Medical Cytology Examination will also be required to complete a practical examination.
4. The candidate must obtain an overall mark of 50% to pass the examination. Candidates for the General Certificate Examination must obtain a minimum of 40% in each of the four sections and 50% overall to pass the examination.
5. The results of the examinations will be announced by the New Zealand Institute of Medical Laboratory Technology.
6. The candidate's script will be returned upon receipt of written application by the candidate. No copy will be retained and no correspondence relating to the marking of the script will be entered into.
7. Candidates must be financial members of the NZIMLT at the time of sitting the examination.

NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY TECHNOLOGY

Application to Sit the Examination of Qualified Technical Assistant
8 and 9 May, 1990

SECTION 1 — TO BE COMPLETED BY THE CANDIDATE

Name: Mr / Mrs / Miss ..... (Surname) (First Names)

Laboratory .....

Lab. Address .....

.....

Subject (Haematology, Microbiology, etc.) .....

EXAMINATION FEE $60.00 (GST inc.)

The full examination fee must be paid with the application

SECTION B — TO BE COMPLETED BY THE PATHOLOGIST OR CHARGE TECHNOLOGIST

Date Candidate commenced work in examination subject .....

"I certify that the above candidate meets the requirements of the Q.T.A. Regulations"

Signed .....

Designation .....

Please state the name and address of the person responsible for receiving the papers and supervising the Examination in your laboratory or centre

Name.....

Address .....

.....

.....

Office use only

APPLICATIONS CLOSE FRIDAY 23 FEBRUARY, 1990

Please forward application forms accompanied by fees to: Mr B. T. Edwards, Secretary, Examinations Committee, Haematology Department, Christchurch Hospital, Christchurch 1.

LATE APPLICATIONS WILL NOT BE ACCEPTED

Special Note to Applicants
*If not already members of the NZIMLT applicants to sit this examination **must** submit a valid membership application along with this examination application.*

THE NEW ZEALAND INSTITUTE OF MEDICAL LABORATORY TECHNOLOGY (INC.)

Application for Membership (For use with Examinations only).

(Please Print Clearly and Tick Appropriate Box)

I,

SURNAME _____

MR, MRS, MS, MISS _____

INITIAL(S) _____

FIRST NAME(S) _____

MAIDEN NAME _____

OF,

WORK ADDRESS _____

_____

PLEASE LEAVE BLANK	
L	____
R	____
S	____
E	____
M	____
Received	____
Acknowledged	____
Council	____
Notified	____
Convenor	____

Hereby apply for membership of the New Zealand Institute of Medical Laboratory Technology in the category of:

☐ Member ☐ Associate

AND Certify That I Have:

☐ Not Previously Been a Member ☐ Previously Been a Member (State Category: _____)

☐ Resigned (Date: _____) ☐ Did Not Resign

I am employed as: _____

in the Speciality Department of: _____

Highest Professional Qualification: _____ Year Obtained: _____

Nominated by: _____

(Current Financial Member N.Z.I.M.L.T.)

Please forward payment with Application for Membership.

Current Membership Subscriptions are:

MEMBER $52 (GST incl). ASSOCIATE $104 (GST incl)

The appropriate membership subscription must accompany this application for this to be a valid application.

from compost material. Fruit and vegetables with which Islanders are familiar, are promoted because only certain crops can survive the nutrient-poor soil of a coral atoll and the effects of constant salt spray. Bread fruit, bananas, taro, papaya and sweet potato are the prime crops planted on the islands.

While the project is making headway in stimulating farming and availability of local foods, malnutrition is on the rise. The majority of malnourished children admitted to the main hospital are from the two urban centres. The nutritional problems of a western diet high in sugar, preservatives and canned meats have been compounded by a 3.5% annual birth increase, one of the highest in the world. In the urban centres people rely almost exclusively on imported food bought in stores. A steady diet of doughnuts, white bread, Coca-Cola and ramen (a local noodle dish) is not unusual. Reversing the impact of modernisation is slow, but the UNICEF project and health officials see change. The success so far suggests that availability of nutritious local foods is more than half the battle. If Island fruits and vegetables are promoted and readily accessible people will chose them over imports.

Interplast Australia

Interplast Australia is an association of plastic surgeons based in Melbourne that co-ordinates small teams of surgeons, anaesthetists and nurses who travel throughout the Pacific region to carry out crucial plastic surgery on those with congenital and acquired deformities. Cleft lips and palates account for about 90% of congenital problems, while burns scar contractures and scar revision create the greatest demand for the skills of the visiting specialists. Plastic surgery in the Pacific Islands until 1983 was limited to major hospitals in Fiji and Papua New Guinea; and even there, lack of expertise meant only basic operations could be performed. But Interplast Australia has now come to the aid of Islanders in need. Interplast was conceived at Stanford University, Connecticut, in 1968: surgeons from Stanford had for years been treating congenital and burns cases from Mexico and South American countries. Because this was an expensive exercise that was limited to the most serious cases, they decided to take a team to the region to assess the viability of doing some of the work in the countries concerned. They found there was a huge demand for assistance in Mexico, Ecuador, Peru and Honduras, and since then have been totally committed in that area.

The Australian group was formed after Dr. Leo Rozner, a specialist who had been visiting America, returned in 1982 and spoke enthusiastically of the work being performed by the Stanford surgeons. After consultation with the Royal Australasian College of Surgeons and initial funding from Rotary International District 980 in Melbourne, it was decided that a number of Australian specialists should join the American teams to see how the system worked.

Finally, in November, 1983, Mr Donald Marshall, a prominent Melbourne plastic surgeon and at that time, Chairman of the Division of Plastic Surgeons within the College, led the first all Australian team to Fiji and operated on 60 cases at the Colonial War Memorial Hospital in Suva.

The success of those operations led to requests for more help; it was evident the need for this service in the Pacific was as great as in Central and South America and Pacific countries including Tonga, Solomon Islands, Vanuatu, Western Samoa, Tuvalu, Kiribati and, more recently, the Cook Islands have been included. Mr. Donald Marshall states that the true plastic surgeon is very attracted to the roots of the profession — to work for people who are genuinely disfigured. The origins of plastic surgery early this century in the ravages of war and disease have become less of a dominant factor, while cosmetic surgery is now more prominent. But while cosmetic surgery is intellectually stimulating and financially rewarding, surgery for those who need it is more fulfilling. Over 2,000 operations have been carried out in Pacific countries in the four years since the inception of Interplast Australia.

Interplast's role will become more consultative as local surgeons are trained: the ultimate aim is to encourage Pacific countries to become self sufficient in this field of medicine. The coups in Fiji last year curtailed operations there for some months, but Interplast teams are active again in Suva, Lautoka, and Labasa, undertaking further programmes of plastic and reconstructive surgery.

INSTITUTE BUSINESS

Office-Bearers of the N.Z.I.M.L.T. 1989-1990

President
W.J. Wilson
Auckland Regional Blood Centre

Vice-Presidents
D. Dixon-McIver
P. McLeod

Secretary
B.T. Edwards
Haematology, Christchurch Hospital

Treasurer
D.M. Reilly
Diagnostic Laboratory, Auckland

Council
E. Norman, S. Gainsford, A. Paterson, J. Le Grice, G. Rimmer

Editor
D. Dixon-McIver
Biochemistry Dept., National Women's Hospital, Auckland.
or the Editor, P.O. Box 35-276, Auckland, 10.

Membership Convenor
Geoff Rimmer
P.O. Box 9045, Newmarket, Auckland.

Membership Fees and Enquiries

Membership fees for the year beginning April 1, 1989 are:

For Fellows — $104.00 GST inclusive

For Associates — $104.00 GST inclusive

For Members — $52.00 GST inclusive

For Non-practising Members — $33.00 GST inclusive

All membership fees, changes of address or particulars, applications for membership or changes in status should be sent to the Membership Convenor at the address given above.

Members wishing to receive their publications by airmail should contact the Editor to make the necessary arrangement.

Minutes of the 45th Annual General Meeting of the New Zealand Institute of Medical Laboratory Technology held in New Plymouth on 30th August 1989 commencing at 4.20pm.

Present
The President (Mr W Wilson) presided over the attendance of approximately 140 members.

Apologies
It was resolved that an apology be accepted for G. Meads. D. Dixon-McIver/K McLoughlin

Proxies
A list of 22 proxy holders representing 99 proxies was circulated to the meeting.

Minutes
It was resolved that the minutes of the 44th Annual General Meeting as circulated be taken as read and confirmed.
D. Dixon-McIver/E Norman

Annual Report
It was resolved that the Annual Report be received.
B. Edwards/D. Reilly

P. McLeod was the only speaker to the Report.

It was resolved that the Annual Report be adopted.
B. Edwards/C. Campbell

Financial Report
It was resolved that the Treasurer's and Financial Report be received. D. Reilly/J. Elliot

Speakers on the Report included D. Reilly and K. McLoughlin.

It was resolved that the Financial Report be adopted.
D. Reilly/J. Parker

Election of Officers
The following members of Council were elected unopposed:—

President	W. Wilson
Vice-Presidents	D. Dixon-McIver
	P. McLeod
Secretary	B.T. Edwards
Treasurer	D. Reilly
Auckland Regional Representative	G. Rimmer
Central N.I. Regional Representative	E.Norman
Wellington Regional Representative	S. Gainsford
Christchurch Regional Representative	J. Le Grice
Dunedin Regional Representative	A. Paterson

No election was necessary.

Presentation of Awards
The award winners were announced and the awards presented by the President:—

CERTIFICATE EXAMINATION AWARDS

Clinical Biochemistry	— Lynette Wong
Haematology	— Jacqueline Neilsen
Microbiology	— Jennifer Ferguson
Immunohaematology	— Zandra Mitchell
Immunology	— Nicola Cronin
Virology	— Judy Budge
Histology	— Kevin Drysdale
Cytology	— Joseph Fauck

SPECIALIST CERTIFICATE EXAMINATION AWARDS

Clinical Biochemistry	— Iona Lowrey
Haematology	— Michelle Petrasich
Microbiology	— Julie Sorenson
Immunohaematology	— Michelle Clarkson
Histology	— Alison Duncan
Virology	— Gillian Hooker
Cytology	— Sarla Naran

QUALIFIED TECHNICAL ASSISTANTS AWARDS

Immunohaematology	— Angela Ricketts
Clinical Biochemistry	— Anne Goodall
Haematology	— Kathryn Powell
General Certificate	— Sandra Adam
Medical Microbiology	— Wendy Thorburn
Histology	— Frances Biggins
Medical Cytology	— Christina Holdaway
Immunology (Microbiology)	— Megan Paton

JOURNAL AWARDS

Roche Products Microbiology Award	— Jeremy Brett
Best Trade Exhibit Exhibit	— Miles and Technicon Ltd

Honoraria
It was resolved that no honoraria be paid.
D. Dixon-McIver/J. Parker

Auditor
It was resolved that Deloitte, Haskins and Sells be left as Institute auditors. D. Reilly/D. Dixon-McIver

Future Annual Scientific Meeting
The President confirmed that the 1990 Annual Scientific Meeting is to be held in Invercargill and that the 1991 meeting would be the third South Pacific Congress in Auckland.

The President asked if any centre was interested in hosting the 1992 meeting but no offers were received.

There being no further business the meeting closed at 4.40pm.

Minutes of the Special General Meeting of the New Zealand Institute of Medical Laboratory Technology held in New Plymouth on the 30th August 1989 commencing at 4.40pm.

Chairman
Mr W. Wilson.

Minutes
It was resolved that the Minutes of the Special General Meeting held on the 31 August 1988 be taken as read and approved. D. Dixon-McIver/C. Campbell

Business Arising
The President reported on the decisions passed at that Meeting which had been actioned by Council.

Remits

1. It was moved P. McLeod, seconded D. Reilly "that Rule 4 (A) be amended by deleting the words 'and conditions of employment' ". Carried unanimously.

2. It was moved by J. Le Grice, seconded K. McLoughlin "that Rule 13 (A) be amended to read 'The Officers of the Institute shall consist of a President, a Vice-President, a Secretary, a Treasurer and five (5) ordinary members. These shall constitute the Council. All members shall retire annually from office and shall be eligible for re-election' ".

   After discussion the motion was put to the meeting and carried with one vote against.

3. It was moved D. Reilly, seconded J. Parker "that the following rates of subscriptions operate from and including the year commencing 1 April 1990:

   For Fellows and Associates — $104 (GST inclusive)
   For Members — $52 (GST inclusive)
   For Non-Practising Members — $33 (GST inclusive)"

   It was moved D. Dixon-McIver, seconded G. Rimmer "that the motion be amended and the rates of subscriptions be as follows:

   For Fellows and Associates — $88.40 (GST inclusive)
   For Members — $33.80 (GST inclusive)
   For Non-Practising Members — $33.00 (GST inclusive)"

   After discussion the amendment was put to the meeting and declared carried on a show of hands.

   The amended motion was then put to the meeting and declared carried on a show of hands.

4. It was moved A. Paterson, seconded J. Parker "that Policy Decision Number 1 be reaffirmed".

   Policy Decision No 1 (1971)' That all committees and meetings convened under the auspices of the New Zealand Institute of Medical Laboratory Technology (Inc.) be subject to a standard of reference of parliamentary procedure and that this be 'A Guide for Meetings and Organisations' by Renton.

   After discussion the motion was put to the meeting and declared carried unanimously.

5. It was moved D. Dixon-McIver, seconded P. McLeod "that a new Policy Decision (Number 2) be approved."

   Policy Decision No 2: That all persons wishing to undertake any examination offered by the Institute shall at the time of application and the taking of the examination be financial members of the Institute.

   It was moved B. Edwards, seconded K. McLoughlin that the motion be amended so that the Policy Decision would read "that all persons wishing to take any examination offered by the Institute, shall at the time of application be a financial member or have submitted a valid application for membership. Further the person must also be a financial member at the time of taking the examination."

   After discussion the amendment was put to the meeting and declared carried on a show of hands.

   The amended motion was then put to the meeting and declared carried on a show of hands.

General Business

It was moved K. McLoughlin, seconded J. Parker "that the Council investigate the possibility of integrating the activities of the NZIMLT and the Medical Laboratory Technologists' Board."

After discussion the motion was put to the meeting and declared carried unanimously.

It was moved B. Tapper, seconded G. Mills "that the NZIMLT establish a 'Public Relations and Marketing Committee' with a view to promoting national awareness of medical laboratory technology".

It was moved J. Parker, seconded D. Dixon-McIver that the motion be amended to read "that the NZIMLT investigate the establishment of a 'Public Relations Marketing Committee' with a view to promoting national awareness of medical laboratory technology."

After discussion the amendment was put to the meeting and upon the counting of hands and proxies it was carried by 94 votes to 39.

The amended motion was then put to the meeting and declared carried on a show of hands.

It was moved C.S. Shepherd, seconded E. Norman "that the Institute confirms its support for a university degree qualification of a type as proposed by the University of Otago."

After considerable discussion the motion was put to the meeting and declared carried on a show of hands.

Mr K. McLoughlin asked the Chairman for details of the financial situation of the Medical Laboratory Science Trust. Mr D.J. Philips responded as Trust Chairman.

A vote of thanks to the Chairman was proposed by D. Dixon-McIver and seconded by E. Norman.

The motion was passed with acclamation.

There being no further business the meeting closed at 6.20pm.

NZIMLT Annual Staffing Survey April 1989

Medical Laboratory Technologists

Currently employed

	1983	1984	1985	1986	1987	1988	1989
Clinical Biochemistry	175	174	187	186	187	187	175
Microbiology	155	164	168	172	176	186	189
Haematology	145	160	160	163	168	176	174
Immunohaematology	84	86	90	92	97	102	96
Histology	25	22	24	24	24	28	26
Cytology	6.5	6.0	5.2	7.2	5.7	7.8	9.5
Nuclear Medicine	4.2	6.2	8.5	8.0	5.8	9.0	7.0
Immunology	23	23	22	28	22	21	30
Cytogenetics	10	5.5	7.5	6.5	7.5	8.0	6.4
Virology	2.0	1.0	2.0	6.0	4.5	6.5	10
Administration (full time)	30	37	34	39	34	33	33
On rotation	47	46	41	55	41	44	40
Other	6.0	4.5	7.3	2.4	3.0	11	7.8
Total	712.7	735.2	756.5	789.1	775.5	819.3	803.7

Private Laboratories (1989):156.7 (19.5%)

Current Vacancies

	1983	1984	1985	1986	1987	1988	1989
Clinical Biochemistry	6.0	9.0	8.5	15.3	11.5	14.0	15.0
Microbiology	5.0	1.5	4.0	12.5	10.0	9.6	13.0
Haematology	4.5	4.5	4.0	11.0	9.8	11.0	11.0
Immunohaematology	5.0	6.0	4.0	6.5	7.3	6.3	3.0
Histology	3.0	3.0	5.0	3.0	5.0	5.0	6.0
Cytology					2.0	2.0	
Nuclear Medicine				1.0	1.0	1.0	
Immunology	1.0	1.0		2.0	2.0	5.0	1.0
Cytogenetics	1.0						0.5
Virology	1.0				1.5	0.5	
Administration (full time)	1.0			1.0	1.0		
On rotation		1.0	3.8	6.5	3.1	3.6	0.5
Other	1.0						
Total	28.5	26.0	29.3	58.8	54.2	58.0	50.0

Medical Laboratory Technology Trainees

Trainee Numbers

	1983	1984	1985	1986	1987	1988	1989
Total Trainees	415	381	334	341	349	371	347
NZCS Trainees	219	185	173	173	175	175	165
Graduate Trainees	18	22	15	39	55	63	64
Certificate Trainees	156	162	133	139	145	158	167
Specialist Cert. Trainees	40	34	29	29	29	38	42
Trainee Vacancies	2	6	21	11	7	8	15

Trainees in Private Laboratories (1989) = 217 (13.5%)

NZCS Trainees

	1983	1984	1985	1986	1987	1988	1989
First Year	67	50	65	61	67	67	55
Second Year	61	65	48	61	49	56	50
Third Year	91	70	60	51	59	50	60

Certificate Trainees

	1983	1984	1985	1986	1987	1988	1989
Clinical Biochemistry	33	45	39	42	46	44	40
Microbiology	50	41	35	33	41	49	53
Haematology	42	38	37	32	31	38	35
Immunohaematology	19	25	15	18	13	12	14
Histology	3	5	4	4	6	4	11
Cytology	3	2		2	3	2	5
Nuclear Medicine	1				1		1
Immunology	2	2		3	1	5	6
Cytogenetics	3	2	1	2	1	2	1
Virology		2	2	3	2	2	

Specialist Certificate Trainees

	1983	1984	1985	1986	1987	1988	1989
Clinical Biochemistry	10	8	9	8	8	6	16
Microbiology	15	5	6	9	6	10	11
Haematology	7	9	5	4	5	7	2
Immunohaematology	4	3	4	5	2	6	6
Histology	1	2	2	1	3	4	4
Cytology		1	1			1	1
Nuclear Medicine	2	5					
Immunology			1		1		1
Cytogenetics	1	1		2	2	3	1
Virology			1		2	1	1

Medical Laboratory Assistants

Currently Employed

	1983	1984	1985	1986	1987	1988	1989
Clinical Biochemistry	188	188	193	183	169	174	177
Microbiology	170	165	186	168	152	188	176
Haematology	142	142	145	143	117	112	118
Immunohaematology	101	101	118	118	114	112	110
Histology	80	78	77	85	76	96	76
Cytology	39	40	32	36	40	35	56
Nuclear Medicine	8.0	16.0	12.5	16.8	11	13	9
Immunology	40	41	32	42	31	48	46
Cytogenetics	7.0	5.0	4.0	7.5	5.5	13	3.5
Virology	5.5	5.6	7.0	7.0	8.0	6.5	5.5
Blood Collection	88	87	96	91	91	75	77
On rotation	59	56	44	51	56	67	64
Other	28	24	31	44	49	49	66
Total	955.5	948.6	977.5	992.3	919.5	988.5	974.0

Private Laboratories (1989) = 411.2 (42.2%)

Current Vacancies

	1983	1984	1985	1986	1987	1988	1989
Clinical Biochemistry	3.5	5.5	5.5	7.0	11.0	5.3	2.0
Microbiology	2.0	3.9	4.8	8.4	5.4	1.9	4.0
Haematology	1.5	1.7	4.3	5.8	4.1	5.6	5.5
Immunohaematology	4.2	2.1	1.0	2.5	4.6	10.9	5.5
Histology		0.5	3.0	2.0	4.5	3.8	7.5
Cytology			1.0	1.0	1.0		2.0
Nuclear Medicine			1.0			1.0	1.0
Immunology			1.0		2.4		1.0
Cytogenetics							
Virology						2.0	2.0
Blood Collection	1.6		1.0	4.0	3.0		4.6
On rotation		2.0	2.7	2.7	0.4	1.0	
Other			1.0		0.5	5.5	1.5
Total	12.8	15.7	26.3	33.4	36.9	37.0	36.6

Scientific Officers

Currently Employed

	1989
Clinical Biochemistry	37.7
Microbiology	5.9
Haematology	2.0
Immunohaematology	2.0
Histology	
Cytology	0.6
Nuclear Medicine	2.0
Immunology	3.0
Cytogenetics	10.0
Virology	5.0
Blood Collection	
On rotation	
Other	8.0
Total	76.2

New Zealand Institute of Medical Laboratory Technology 1989 Technical Assistant's Examination Results

Q.T.A. in Clinical Biochemistry.
ANDERSON, Carmen Jane; BILLETT, Susan Joy; FROGGATT, Vivienne; GOODALL, Catherine Anne; HALL, Lynley Grace; HURLEY, Christine Ann; KARREMAN, Tina Marie; MURRAY, Elizabeth Claire; WEARNE, Kim Marilyn.

Q.T.A. by General Certificate
ADAM, Sandra Jane; HARRIGAN, Megan Jane; LAWRIE, Elizabeth Jean; SMITH, Trudi Denise.

Q.T.A. in Haematology
CABLE, Elizabeth Helen; CAMPBELL, Tania Leeane; CRAM, Delys Judith; DUNLOP, Carol Joy; GREENWOOD, Rachel Marie; HOLLEY, Maxine Karol; McFALL, Julie, McNAUGHTON, Tania Jane, MORATTI, Fiona Mary; POWELL, Kathryn Anne, RAJ, Manjula Devi; TRAYNOR, Cynthia Anne.

Q.T.A. in Histological Technique
BIGGINS, Frances Mary; BROOKES, Lara Jean; FOSTER, Gael June; ROELFS, Mary-Ann.

Q.T.A. in Medical Cytology
BERWICK, Elizabeth Margaret; FITZSIMONS, Glynnis Maree; HAMPTON, Glenis Maree; HOLDAWAY, Christina Jeanne; MITCHELL, Jane Louise.

Q.T.A. in Medical Microbiology
ANDERSON, Kathryn Margaret; BRENKLEY, Paulette Frances; BROWN, Jennifer Jan; BROWN, Shirleen Erina; CONNON, Rachel Virginia; DE JANGE, Karin, GRACEY; Sandra Jane; HARRISON, Raewyn Lousie; HUME, Wendy Annette, JONES, Richard David; PORTEOUS, Leesa Doris; READE, Charissa Nicole; ROBERTS, Jodi Margaret, SCADDEN, Bronwyn Susan Joy; SHEELY, Susan Mairie; THORBURN, Wendy Maree; ULUI, Josaia Neinoka; VOICE, Lee-Ann Maree; WATSON, Lisa Helen; WELLS, Bridget Mary; WILLIAMSON, Karin Leanne.

Q.T.A. in Mortuary Hygiene and Technique
LIBEAU, Delwyn Marie; PRIDDLE, Terrence.

Q.T.A. in Radioisotope and Radioassay Technique
COX, Heather Jacqueline; GALVIN, Robyn Joan; PUTT, Kim Maree; SULLIVAN, Sandra Tracy.

Q.T.A. in Immunohaematology
BROOKS, Janice Marion; DUNN, Jason Adam; RICKETTS, Angela Kerry; VICKERS, Deborah Kim; WAGSTAFF, Christine Anne.

Q.T.A. in Immunology (Microbiology)
BRADBURN, Nicola Mary; McKENDRY, Sara Dairne; ORR, Joanne Leigh; PATON, Megan Louise; TWEEDIE, Lisa Jane.

Q.T.A. by Special Certificate — Immunology
COLGAN, Shona May.

Q.T.A. by Special Certificate — Mycology
YOUNG, Kim Merran.

Q.T.A. by Special Certificate — Blood Products.
TREMAIN, Andrea Dianne; VENABLES, Michael John.

Situation Wanted

Laboratory Position

A thirty-eight year old, married Iranian technologist seeks a suitable laboratory position in New Zealand. Over 15 years experience in a medical laboratory, the last ten years in Immunology. A full curriculum vitae available on request. Please contact:

Ghodratollah Ghorbani,
Immunology Laboratory,
Hashemi-Nejad Medical Centre,
Above Vanak Sq., Valiasr Ave,
Tehran, 19697
Iran.

OMISSION

The address of the author of "Extra-Analytical Considerations in Re Assurance of Quality blood Gas Results" was omitted from Vol 43 No 1 p12. It should have read:

Robert F. Moran,
Technical Liaison,
Critical Care Systems
Ciba Corning Diagnostics Corp.
63 North Street
Merlfield, MA 02052-1688

1989 TECHNICAL ASSISTANTS EXAM RESULT SUMMARY

Examination	No Enrol	No Sat	No A	With B	Each C	Grade D	Grade E	Aegrotat P	Aegrotat F	% Pass	Av Mark
Q.T.A. in Clinical Biochemistry	11	11	0	2	7	2	0	0	0	81.8	58.1
Q.T.A. in General Certificate	6	5	1	2	1	0	1	0	0	80.0	63.8
Q.T.A. in Haematology	12	12	0	6	6	0	0	0	0	100.0	63.7
Q.T.A. in Histological Technique	4	4	2	2	0	0	0	0	0	100.0	77.5
Q.T.A. in Medical Cytology	7	7	0	2	3	1	1	0	0	71.4	54.7
Q.T.A. in Medical Microbiology	23	23	5	6	10	1	1	0	0	91.3	64.3
Q.T.A. in Mortuary Hygiene & Technique	3	2	0	2	0	0	0	0	0	100.0	66.8
Q.T.A. in Radioisotope & Radioassay Technique	4	4	1	2	1	0	0	0	0	100.0	66.8
Q.T.A. in Immunohaematology	6	5	0	3	2	0	0	0	0	100.0	64.6
Q.T.A. in Immunology (Microbiology)	5	5	0	2	3	0	0	0	0	100.0	62.8
Q.T.A. by Special Certificate — Immunology	1	1	0	0	1	0	0	0	0	100.0	58.0
Q.T.A. by Special Certificate — Mycology	1	1	0	0	1	0	0	0	0	100.0	57.0
Q.T.A. by Special Certificate — Blood Products	3	3	1	1	0	1	0	0	0	66.7	67.0
Total	86	83	10	30	35	5	3	0	0	90.4	63.2

Saint Albert the Great — Patron Saint of Medical Laboratory Technology

Brian Miller

With things material very much to the fore in our lives as laboratory workers, perhaps we could have our negotiators plead for the inclusion of November 15th each year as a paid holiday in honour of Saint Albert the Great, (c.1200-1280), selected as Patron Saint of Medical Technology.

Albert was born in Lauringen, Swabia, and joined the Dominican Order. He taught in Dominican schools in Hildesheim, Freiburg, Ratisbon, Strasbourg, Cologne (1228-1245), and Paris (1245-1248). Despite his preference for a scholastic life he was made Provincial of his Order for Germany, and Bishop of Ratisbon (1260). While Provincial of the German Dominicans, and despite the administrative burdens and required visitation of each priory and nunnery, he continued his prolific writing and scientific research in libraries, fields, ore mines, and industrial localities. He was also much in request as a judge in ecclesiastical disputes.

Tradition claims that he walked barefoot on all his journeys — obviously he needed a shoe and stocking allowance. The 13th century was a golden age of learning, and Albert is included with such erudite scholars and teachers as Bonaventure, Innocent III, and his own pupil Thomas Aquinas.

In 1262 Albert retired to a cloister in Cologne, but emerged 15 years later, at the age of 76, to successfully defend the doctrine and memory of his by now deceased pupil Aquinas, at Paris. He returned to his monastery and died aged 79. He is buried in the Dominican church at Cologne.

Albert came to be recognized as the Universal Doctor (no Specialist Exams at that time), because of the extent of his learning. In spite of much of his time being taken by teaching and administration (a tutor's lot is not a happy one), he wrote essays on almost every phase of science, including physics, biology, mineralogy, chemistry, zoology and physiology; altogether he wrote 35 works of science of one kind or another (a delight to journal editors). He also wrote substantial works on such subjects as Logic, Metaphysics, Psychology, Ethics, Politics, and Theology. He was acquainted with nearly all the known scientific works of the ancients, including the major works of Aristotle, which may have remained obscure but for Albert. Apparently asked by his younger confreres to explain Aristotle's "Physics" in writing, he undertook to explain systematically all the branches of natural science, logic, rhetoric, mathematics, astronomy, ethics, economics, politics, and metaphysics. "Our intention," he said, "is to make all the aforesaid parts of knowledge intelligible to the Latins." This vast project took about 20 years to complete, and is one of the marvels of medieval scholarship. He also kept abreast of the accomplishments of his contemporaries (the forerunner of the Annual Scientific Conference and specialist Journal Clubs?). Although Albert did involve himself in the "pure" science of observation and the recording of his findings, his distinction is due rather to his verification by experiment of the findings of others, and then furthering and enlarging upon them.

His achievement was his substantial contribution to the scientific research and theory of his time; his promotion of the use of Aristotle in the teaching of Philosophy; and his gathering together the schools of thought of pagan, Arabic, Jewish, and Christian tradition, for future generations such as Thomas Aquinas, to collate and present in an orderly manner.

Albert was beatified by Gregory XV in 1622, and canonized and proclaimed a doctor of the church (Doctor Universalis) by Pius XI in 1931. In the solemn decree Ad Deum (Dec. 16, 1941), Pius XII constituted him the heavenly patron of all who cultivate the natural sciences.

"The aim of natural science is not simply to accept the statements of others, but to investigate the causes that are at work in nature."

The real influence of Albert, felt throughout the Renaissance, comes from his establishing the study of nature as a legitimate science in the Christian tradition.

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Wellington Branch NZIMLT Seminar

A one day Medical Laboratory Technology Seminar was held on 27 May 1989 at Wellington Hospital. About 60 delegates from the Taranaki, Manawatu, Blenheim and Wellington regions attended. The theme for the morning session was "The Future of Medical Laboratory Technology" where invited guest speakers gave their views. Dr J McCafferty, Chairman of the Society of Pathologists talked about laboratory funding; Barbara Bucket, Legal Consultant to the Ministry of Women's Affairs, explained what Unions are and how they work; Shirley Gainsford, Wellington NZIMLT Council Member, gave an update on our Union; while Jan Parker, Dunedin, NZIMLT Council Member gave her views on the proposed degree in Medical Laboratory Sciences.

In the afternoon, a variety of papers were presented which are abstracted below. The Watson Victor prize for the best paper presentation was won this year by Jean Henry of the Wellington Hospital Microbiology Department. The formal session was concluded with a social hour.

Anaerobiospirillum succiniciproducens Septicaemia — "A Case of Red Herrings"

Jean Henry, Microbiology Division
Department of Laboratory Services, Wellington Hospital, Wellington

Anaerobiospirillum succiniciproducens is a motile, spiral anaerobic bacterium which has bipolar tufts of flagella. Clinical illness caused by *A. succiniciproducens* has been reported on few occasions. In each reported case, there have been underlying disorders including alcoholism, atherosclerosis, malignancy, diabetes, recent surgery and dental caries. A male Maori aged 55 years was admitted to Wellington Hospital with a clinical history of non-insulin dependent diabetes, 2 months malaise, generalised muscle ache, abdominal tenderness, anorexia, significant weight loss and pyrexia. Hospital investigations revealed metastatic carcinoma (with origin undetermined) and liver abnormality. Two sets of blood cultures taken shortly after admission grew *A. succiniciproducens* from the anaerobic cultures. Antibiotic treatment was initiated and subsequent sets of blood cultures remained sterile. Identification of the organism was established by studies of morphology, growth requirements, flagellar stains, gas liquid chromatography and electron microscopy.

Tuatara, Capture, and Reproductive Chemistry

John D. Newton: Department of Laboratory Services, Wellington Hospital

The Tuatara-Sphenodon punctatus, is the sole survivor of an Order of reptiles which otherwise perished with the dinosaurs over 200 million years ago.

It is unique to New Zealand and, despite strict total protection, the past 100 years have seen diminishing populations vanish from the mainland to survive only on 29 islands in Cook Strait and off the north east coasts of the North Island.

Studies by a Victoria University based group are showing that a very long, very slow reproductive cycle of low productivity probably cannot keep pace with the competition and depredations of rats.

Measurements of changes in plasma hormones, calcium, phosphate, total protein, and cholesterol show that the Tuatara may take over 10 months to mate, produce and lay eggs. Utter parental indifference after laying does little to help.

Rat free Stephens Island has the biggest population of some 50,000, with modest sized specimens probably resulting from territorial and environmental competition.

The biggest animals are found in the Poor Knights Islands group where there is a more hospitable rat free, habitat.

A New Use for Hospital Issue Tissue: Bone Marrow Aspirate Histology

Sharon Ryan, Haematology Department, Hutt Hospital

A number of haematology laboratories process bone marrow clots histologically. Our laboratory method is a little unusual with only filtered bone marrow fragments being processed, the red cells are discarded. The resulting HTE sections are far superior to bone marrow clot sections, and are now part of our routine bone marrow procedure.

The filtration technique and the resulting sections will be presented.

First Experiences with the BACTEC for the Laboratory Diagnosis of Mycobacterial Infection

J L Brett, Microbiology Wellington Hospital

The BACTEC Tb system detects the growth of Mycobacteria in broth culture by measuring $^{14}CO_2$ liberated during the decarboxylation of ^{14}C labelled palmitic acid. We have used the BACTEC Tb system in conjunction with our routine methods since October 1988. Six hundred and eighty six and 936 specimens were processed by each method respectively. A total of 59 specimens were culture positive for Mycobacteria, 55 by our routine method and 43 with the BACTEC. Eight specimens, culture positive by our routine methods, were not cultured using the BACTEC. A higher number of the BACTEC cultured specimens were lost through contamination and two of the BACTEC cultures became contaminated with *Mycobacterium gordonae*. Other disadvantages of the BACTEC system include the increased hazard to laboratory staff of handling *Mycobacterium tuberculosis* in liquid culture with syringes and the difficulty of demonstrating acid and alcohol fast bacilli in positive vials. Despite these limitations, the BACTEC Tb system provided the initial diagnosis of mycobacterial disease for three of the 14 patients whose results are presented here. In addition, positive culture results were obtained significantly faster with the BACTEC. For these reasons it is concluded that the BACTEC Tb system is a useful adjunct to our routine methods for the diagnosis of mycobacterial disease.

Hansenula anomala Fungemia in an Immunocompromised Patient

Mary Carr and J L Brett, Microbiology, Wellington Hospital

A severely neutropenic patient developed fungemia caused by the yeast *Hansenula anomala*. The organism was isolated from blood over a period of 14 days. Positive cultures were obtained from the Hickman Line on six occasions and on one occasion from peripheral blood. *Hansenula anomala* is an ascosporogenous yeast of the class Hemiascomycetes, order Endomycetales, family Saccharomycetaceae. It is found in soil and as a contaminant in brewing, and is thought to be a transient colonizer of the human gastrointestinal tract. Human infection is rare, only 22 instances being documented to date. Predisposing factors were present in every case and included:- low birth weight (7), hematological disorders (3), endocarditis following I.V. drug abuse (1), Crohn's disease (1), Multiple Sclerosis (1), and chronic heart disease (1). Two female patients with cancers of the genital tract developed infections associated with use of central venous catheters for parenteral nutrition. An outbreak of deaths in 1953 involving 5 babies with low birth weight, whose lungs were colonized with *Hansenula anomala*, was later attributed to *Pneumocystis carnii* infection. Most cases have been associated with infected central venous catheters, intraventricular catheters or parenteral nutrition. As in other catheter associated yeast infections, prompt removal of the catheter usually results in rapid cure.

Racial Differences in Plasma Urate: Implications for Laboratory Reference Ranges.

Claire Murphy[1], Robert Siebers[2], Wayne Chisnall[1] and Tim Maling[2]. Department of Chemical Pathology, Wellington Hospital[1], and Department of Medicine, Wellington School of Medicine[2], Wellington.

Plasma urate was significantly higher in Maori men ($\bar{x}$ = 0.420mmol/L; S.D. 0.073; n=48) than in non-Maori men ($\bar{x}$ = 0.375mmol/L; S.D. 0.055; n=57). Weight was significantly higher in Maori men, and was positively associated with plasma urate ($r = 0.558$; $p = 0.0001$). Analysis of co-variance showed that plasma urate remained significantly different between the two races after weight adjustment; mean difference before weight adjustment was 0.045mmol/L; $p = 0.0005$ and after weight adjustment was 0.036mmol/L; $p = 0.0075$.

Plasma Na^+, K^+, urea, creatinine and cholesterol were similar in both races. Plasma cholesterol was positively associated with age ($r = 0.558$; $p = 0.0001$) and with diastolic blood pressure ($r = 0.268$; $p = 0.0065$), the latter entirely due to age because of an age with diastolic blood pressure association ($r = 0.443$; $p = 0.0001$).

In this study we have shown that race and weight are confounding variables that have to be taken into consideration when determining laboratory reference ranges. These findings also have implications for epidemiological studies to determine markers or indicators of disease states between racial groups.

Supported by the National Heart Foundation (New Zealand).

Racial Differences in Platelet Parameters

John Carter[1,3], Robert Siebers[2], Philip Wakem[3], Tim Maling[2], Departments of Pathology[1], Medicine[2] and Haematology[3], Wellington School of Medicine and Wellington Hospital

Documented differences exist for platelet counts between

racial groups (1,2). These differences have been attributed to iron deficiency in females (1) and proposed as an epidemiological marker for ischaemic heart disease (2). A full haematology screen was performed on 57 non-Maori and 47 Maori male subjects, predominantly non-smokers, on low alcohol intake and taking no medication. Blood was analysed exactly two hours after venepuncture on a Coulter S plus V thus minimising alteration of MPV.

Maori men had higher weight than non-Maori men (88.4kg; S.D. 12.5 v 81.0kg; S.D. 9.0). Platelet counts were higher in Maori men (295 x 10^9/L; S.D. 46) compared to non-Maori men (253 x 10^9/L; S.D. 50). Likewise plateletcrit was higher in Maori men (0.227; S.D. 0.033) than in non-Maori men (0.202; S.D. 0.032). MCV was lower in Maori men (86.2 fl, S.D. 4.6) than in non-Maori men (89.1 fl; S.D. 3.3). Weight was significantly correlated with platelet count ($r=0.30$; $p=0.003$). Significant differences for platelet counts remained when either weight was adjusted for analysis of co-variance; for when subjects with a MCV of <80 fl and/or a RDW of >14.6% were excluded from the data to exclude overt iron deficiency.

Given the higher incidence of cardiovascular disease in the Maori, our findings of higher platelet counts in this group tentatively supports the use of platelet counts as an epidemiological marker. However the possibility of a true genetic difference cannot be excluded and this has implications for laboratory reference range studies.

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2. Meade TW, et al. *Br Heart J* 1978; **40:** 789-95.

Difference in Renal Sodium Handling between Maori and Caucasian Men

Robert Siebers and Tim Maling, Department of Medicine, Wellington School of Medicine

Enhanced renal sodium reabsorption in the renal proximal tubule has been implicated in the pathogenesis of human essential hypertension. Renal tubular sodium reabsorption is predominantly governed by the Na^+H^+ exchange mechanism. This mechanism can be studied in vivo using lithium as a marker.

Healthy Maori (n=48) and non-Maori (n=57) men were given 1g of oral Li_2CO_3 after blood pressure and weight measurements. Exactly 24hr and 48hr later blood was obtained for plasma Li^+ measurement. A 12hr urine specimen was collected for urine Li^+ and Na^+ measurement. The midpoint plasma Li^+ concentration was calculated from the exponential decline in plasma Li concentrations. Li^+ clearance was calculated as

$$\frac{\text{urine } Li^+ \text{ mmol/L}}{\text{plasma } Li^+ \text{ mmol/L}} \times \text{urine flow (ml/min)}$$

Li^+ clearance was then expressed as a fraction of the creatinine clearance.

Fractional Li^+ was 12.6% lower in Maori men (18.7%; SD 4.0) compared to non-Maori men (21.4%; SD 6.1) which was statistically significant ($p<0.02$, Mann-Whitney U test). Fractional Na^+ clearance, reflecting dietary salt intake, was not significantly different between the groups. Furthermore erythrocyte Na^+ concentrations were higher in Maori men (8.4 mmol/L; SD 1.7) than in Caucasian men (7.1 mmol/L; SD 1.8). Blood pressure and weight were not related to fractional Li^+ clearance.

The 16% increase in erythrocyte Na in Maori men reflects a fundamental racial difference in sodium homeostasis. From our data we postulate that there is a racial difference in renal proximal tubular sodium handling which may predispose to the higher incidence of development of hypertension in the Maori, compared to non-Maoris.

Supported by the National Heart Foundation of NZ.

NEW PRODUCTS AND SERVICES

NEW DEVICE FOR MEASURING MEMBRANE POTENTIAL AND EPITHELIAL RESISTANCE

Millipore is pleased to announce the availability of the new Millicell-ERS Resistance System. The device provides a qualitative measure of cell monolayer health and a quantitative measure of cell confluency by measuring membrane potential and resistance of epithelial cells in culture. This is crucial in experiments which require intact monolayers, such as in cell transport and polarity, drug absorption and bioavailability, and toxicology.

Applications: Measurements of the effect of drugs, chemicals, hormones, etc. on the permeability of tight junctions. Assessment of the effectiveness of growth matrices. Monitoring of disruption of a monolayer by invading tumor cells. Monitoring of transepithelial penetration by leukocytes. Identification of specific molecules involved in tight junction assembly by determining what specific antibody blocks recovery of transepithelial electrical resistance. Characterization of different clones or strains from an immortal cell line (i.e. MDCK cells, airway epithelia used in cystic fibrosis research).

The Millicell-ERS device uses an advanced electrode design and alternating current (AC) as opposed to the classic use of salt bridges, clamping chambers, and DC current. The device is easily sterilized, non-evasive, and simple to use.

For further information contact Bryn Smith, Biolab Scientific, Division of Salmond Smith Biolab, Northcote, Auckland. Phone 418-3039.

BIOCLONE AGENCY

Bioclone Australia offers a range of RIA Kits and Monoclonal Antibodies marketed through Biolab Scientific, division of Salmond Smith Biolab. These include:—

hCG Irma	Growth Hormone Irma
LH Irma	Somatomedin C RIA
FSH Irma	Oestriol RIA
TSH Irma	Free Alpha Glycoprotein Subunit Irma
hCG	Free Beta hCG Irma
Ferritin	Total IgE Irma
Prolactin	
Progesterone	

Bioclone is marketed in Australia, Europe and USA and owes it success to the quality of staff and excellent Research and Development programmes, especially with the superior range of monoclonal antibodies. Many of the kits offer the Magnetic Separation technique and a series of EIA Kits and instrumentation are to be released later in the year. Marketed by Biolab Scientific Division of Salmond Smith Biolab.

NEW AGENCY

Hoefer Scientific, world leaders in Electrophoresis Systems, has appointed Biolab Scientific, a division of Salmond Smith Biolab, as the exclusive distributor in New Zealand.

Biolab Scientific will stock Hoefer units, accessories and spare parts and will begin a series of newsletters to communicate the newest techniques of electrophoresis to researchers in New Zealand. Marketed by Biolab Scientific Division of Salmond Smith Biolab.

BECKMAN PROTEIN TEST KIT DETECTS INFLAMMATION

Beckman Instruments introduces the new, improved CRP C-Reactive Protein Test Kit for measuring the classic acute-phase protein, which can detect inflammation or infection long before it is clinically indicated by white blood cell counts, febrile responses or elevated erythrocyte sedimentation rates.

The test kit for high sensitivity results without using temperature-dependent latex particles, eliminates off-line

sample preparation of diluting and centrifuging the sample to remove interfering particles.

Beckman's CRP kit is used with the ARRAY® protein analysis system, a nephelometric method correlates with Beckman's original CRP kit and with latex enhanced nephelometric procedures. Contact Sonatec for further information.

NEW TV DOUBLE MICROSCOPE

Following growing need for rapid switching between two simultaneously mounted TV cameras, Carl Zeiss has now available for the AXIOPLAN Research Microscope a special dual TV module.

Typical applications for twin-TV microscopy is the combination of residual light fluorescence and analog contrast enhancement microscopy. Each of these techniques call for completely different type of TV cameras such as LLL and ACE systems. Low-light-level (LLL) cameras are required to monitor very weak fluorescence labelling with ACE analogue contrast enhancement being employed for cell structure studies.

Both TV camera ports have switchable beam-splitting ratios and for instance, can be set to simultaneously address two TV cameras.

For further information, please contact: Carl Zeiss Pty. Ltd., 114 Pyrmont Bridge Road, Camperdown NSW 2050. Tel.: (02) 516 1333.

NEW CRYOSTATS FROM CARL ZEISS OFFER HIGH PRECISION, LOW MAINTENANCE

Carl Zeiss has introduced the MICROM HM 500 series of cryostats to the Australian and New Zealand markets. These cryostats are manufactured by MICROM, Heidelberg, West Germany. The HM 500 series cryostats are designed to accept large specimens, and feature specimen retraction, motorized specimen approach to the knife, and low maintenance. They are suitable for a wide range of biological and industrial applications, such as sectioning of specimens for biopsy, or the low temperature cutting of polymers.

The MICROM cryostats offer research-grade capabilities. Specimen retraction of 80 microns during the return stroke maximises section thickness reproducibility and prolongs the life of the knife edge. Maintenance and blacklash-free roller bearings support vertical specimen movement providing high stability and precision, ensuring superior section quality. Roller bearing guideways significantly reduce the need for cryostat oiling from a daily to monthly routine.

The cryo-chamber can be cooled from +20°C down to -40°C. The system is designed to ensure completely frost-free operation at any temperature. Stable cryostat temperatures and frost-free environment are maintained even when the cryostat door is open. Special frost-free design means less maintenance since cryostat defrosting is required infrequently.

A motorised drive for automated cutting, useful in sectioning, is optionally available. Also available is independent specimen temperature control in a range from +5°C to -40°C. This feature allows for sectioning of fatty biological tissues, particularly useful in surgical pathology. Both options are modular in design and may be added to the instrument at the time of purchase.

For further information, please contact: Carl Zeiss (NZ) Ltd., Ground Floor, Mayfair House, Wellington, New Zealand. Tel.: (04) 724 860/861.

NEW PAP-4C AUTOMATES CHROMOGENIC ASSAYS

Bio-Data Corporation has introduced an updated model of its popular Platelet Aggregation Profiler, PAP-4 which includes a chromogenic test mode. The new model, designated PAP-4C, automates existing commercially available chromogenic assay kits such as Anti-Thrombin III, Protein C and Plasminogen. The PAP-4C provides four test modes enabling the laboratory to perform platelet aggregation, Von Willebrand assays, leukocyte aggregation and chromogenic assays in a sigle instrument. All four modes operate on microvolumes of reagent and provide sufficient automation in each test mode to substantially reduce operator labor.

Once in the chromogenic assay mode, the PAP-4C prompts the operator through each step of the procedure. Curve generation and interpolation of test results are automatic with curve storage for eight separate assays at one time. The PAP-4C measures for initial rate reactions rather than the end point for more rapid and accurate results.

The PAP-4C provides the coagulation laboratory or haematology laboratory a centralized instrument for performing these special tests apart from its routine coagulation instrument. As performed on the PAP-4C, chromogenic assays are simplified permitting laboratories with limited experience to offer this growing test capability.

Bio-Data Corporation also provides a retrofit program to existing owners of its PAP-4 to upgrade their instruments to perform the new chromogenic test mode.

For more information on this please contact Wilton Instruments, P O Box 31-044, Lower Hutt. Phone (04) 697-099.

REPTILASE PLUS QUALITY CONTROL PLASMA

Reptilase-PC (Plus Control) is the first kit designed for the performance and control of the Reptilase Time. The Reptilase time, in combination with the thrombin time, is now included in the coagulation profile for patients undergoing liver transplant surgery. An increasing number of reports have identified the presence of functionally abnormal variants of fibrinogen in patients with liver disease. The plasma form these patients may yield a thrombin time that ranges from normal to modestly prolonged. However, the Reptilase time will be significantly prolonged due to the abnormal fibrinogen molecule. As a result the Reptilase time has become a particularly useful and sensitive procedure for monitoring patients with hepatic disorders and patients undergoing liver transplants.

The Reptilase-PC kit contains 1.0mL of the purified venom from the Bothrops atrox pit viper. Also included is 1.0mL of lypohilized Normal Control Plasma specifically designed to assure quality control of the Reptilase time.

Reptilase-PC is also valuable in the assessment of hypofibrinogenemia, and DIC. Used with the manufacturer's Thrombolytic Activity Test, Reptilase-PC is a useful adjunct in fibrinolytic therapy. The reagent is compatible with all coagulation instruments or manual techniques.

For further information on Reptilase-PC contact: Wilton Instruments.

ANTIBIOTIC DISC DISPENSER: STOKES PATTERN

We have had designed for us a multiple disc dispenser that delivers six antibiotic discs, in any combination, in two parallel rows (Stokes Pattern) that permits direct zone comparison between test and control organism. Precision engineered in perspex and stainless steel, the device drops the discs simultaneously via a simple spring-loaded mechanism. Plates can be easily aligned for dispensing, being visible though the clear perspex. Vials of individual discs are easily removed should the combination be changed.

The system provides us with the satisfaction of having a control on each disc and the flexibility to change our regimen with ease, a significant advantage over the older Pluradisc system. We choose to have several of the dispensers, one for each regular antibiotic profile and a spare, for specifically requested combinations. However for smaller laboratories, one or two dispensers would be perfectly adequate because of the ease of changing individual disc dispensers.

The dispenser is contructed from high grade materials ensuring an indefinite use (unless used for karate practice). It can readily be stored in a sealable plastic container along with appropriate dessicant, when not in use. Enquiries are welcome, contact Gerard Verkaaik, Wairau Hospital, Blenheim, or place direct orders with Deutec, P.O. Box 92 Blenheim.

BECKMAN IMPROVES NEPHELOMETRIC TEST KIT FOR RHF

The new, improved RHF™ Nephelometric Rheumatoid Factor Test Kit from Beckman Instruments uses low-cost rate nephelometry for diagnosis and monitoring rheumatoid arthritis.

This new automated kit details assessment of immunological responses, monitors the effectiveness of therapy, and provides an index of inflammation. It is standardized to World Health Organisation reference material for uniform worldwide reporting units.

Beckman's RHF kit eliminates time-consuming centrifugation and potential errors associated with heat inactivation. This new kit allows RHF placement anywhere on the sample tray, eliminating batch testing.

This kit is compatible with the ARRAY® protein analysis system. It also correlates well with Beckman's original Rheumatoid Factor kit and with latex enhanced nephelometric assays. For further information contact Sonatec.

DUAL OBSERVER TUBE

Despite enormous advances in CCTV technologies, second observer devices for microscopes have remained as relevant as ever.

To satisfy these requirements Carl Zeiss has announced the availability of a dual observer tube which makes optimum use of the infinity corrected ICS optics by retaining full field of view and identical image brightness. The design of the new co-observation module allows concurrent use of either binocular or trinocular tubes on reflected or transmitted light set ups. Because of the extent of the integration with the main microscope even the use of incident light fluorescence equipment is possible. The main beamsplitter section can accommodate either left or right hand mounted observer tubes and can be fitted with an illuminated moveable pointer.

For further information, please contact: Carl Zeiss Pty. Ltd., 114 Pyrmont Bridge Road, Camperdown NSW 2050. Tel: (02) 516 1333.

STATE-OF-THE-ART MICROHARDNESS TESTER WITH TV MONITOR DIALOGUE

Carl Zeiss has announced the availability for their AXIOPLAN and AXIOVERT Metallographs of a programmable microhardness tester.

Designed for load ranges between 0.0005 and 2 N the MHT-4 consists of either a Vickers or Knoop indentor, a microprocessor control unit with printer interface, and a black and white TV system with graphic overlay.

Unlike other hardness tester, the indentation is displayed on a high resolution monitor and subsequent measurement is performed by a mouse driven measuring grid.

For further information, please contact: Carl Zeiss Pty. Ltd., 114 Pyrmont Bridge Road, Camperdown NSW 2050. Tel.: (02) 516 1333.

NEW BUSINESS SPEEDS INTRODUCTION OF CANCER DETECTION PRODUCTS

The Du Pont Company has formed a new business unit to develop and introduce products for the early detection and diagnosis of life-threatening malignancies.

Called Du Pont Cancer Products, the unit will focus on tests for tissue samples and bodily fluids and will complement the activities of other Du Pont businesses involved in improved therapeutics and advanced X-ray and imaging techniques.

Many of the significant therapeutic advances that have improved the survival of cancer patients depend on early detection. A major aim of the new business will be in oncogenes and the fundamental mechanisms of cell growth and development. An oncogene is a small portion of a cell's genetic code which researchers believe may be related to the change from a normal to cancerous state.

Du Pont's efforts are being pursued in part through Oncogenetics Partners, a joint venture with Applied bioTechnology Inc. This venture has already developed a number of nucleic acid probes, monoclonal antibodies and oncogene protein products for research use. Their application in serum and tissue analysis is being explored.

Du Pont Cancer Products also will sell estrogen and progestin receptor assays that have been a major factor in providing more effective therapy with less toxic effects to patients with breast cancer. A package of monoclonal antibodies to tumor antigens for research use also will be included In the initial product offering.

Please contact Du Pont N.Z. Ltd, Phone (09) 277-8080.

STUDY INDICATES "ISOLATOR" SYSTEM INACTIVATES HIV

Human immunodeficiency virus (HIV) in blood cells can be inactivated in about two hours using the Du Pont Company's "Isolator" microbial tube system, recent data suggests.

Findings were published in the December 1988 Archives of Pathology from presentations given at the American Society for Microbiology annual meeting in Miami, and the IV International Conference on AIDS, Stockholm. The study was conducted by researchers R. Hodinka, P. Gilligan and L. Smiley at the University of North Carolina School of Medicine in Chapel Hill.

The findings have significant implications in ensuring that clinical and research laboratory technologists are protected against accidental exposure to HIV.

The study involved the inoculation of HIV-infected cells into columbia or Middlebrook 7H12 broths and an "Isolator" tube/ Middlebrook broth. Virus viability studies were done by removing aliquots from these media at zero, one, two, and seven days and co-cultivating them with uninfected cells.

HIV was still viable after two days incubation in Middlebrook broth and seven days in Columbia broth. When HIV-infected cells were held in the "Isolator" blood culture tube for 60 to 120 minutes, no virus could be detected after Middlebrook broth incubation.

Many laboratories use needles to transfer blood specimens or broth samples, and accidental needlestick injuries may cause hospital-acquired HIV infection. This study shows that laboratory workers are less likely to contract accidental HIV infection when blood samples are held in the "Isolator" tube for at least 60 minutes prior to subculturing.

Reprints of this study are available from Du Pont medical products representatives.

GUIDE DESCRIBES WESTERN BLOT ANALYSIS; RESULTS INTERPRETATION

A new instructional guide from the Du Pont Company helps users of its HIV Western Blot test kit correctly analyse and interpret test strip results.

The 12-page guide is the first publication of its kind to describe Western Blot tests, how they work, their purpose and execution, and how to read results. A more standardised approach to test strip analysis and interpretation is expected to result, according to Dr John Calcogno, senior technical specialist for Du Pont's HIV testing products and co-author ofthe guide.

"Up to this point, there has been little training in medical schools, hospitals, blood banks or clinical reference labs in reading Western Blot strips," Calcagno said. While he feels

basic test strip reading and analysis are not difficult, there are cases where results are not clear cut.

"Occasionally, bands will appear on a strip that are not associated with one of the nine major viral bands," he said. "This is where the guide can help since both simple and difficult strip readings are reproduced with excellent detail and accuracy. It's a good introduction for someone using any Western Blot method and a highly specific aid for the kit developed by Biotech Research Laboratories."

The guide's co-author, Dr Steve Alexander of Biotech Research Laboratories, is the developer of the test. Calcagno has worked on the product since 1986 and is the principal technical advisor to customers. He has a Ph.D. in microbiology/immunology from Temple University School of Medicine.

The Biotech/Du Pont Western Blot test kit is a very sensitive and specific procedure used to confirm blood samples testing positive for HIV. The kit is the first confirmatory test approved by the FDA.

HIVCHEK™

Du Pont has developed, and is now marketing, a five minute visual test for the detection of HIV-Antibody in sera and plasma. The HIVCHEK™ kit requires no laboratory equipment nor specialised technical expertise.

The test involves capture of HIV-Antibodies by a Recombinant Protein (ENV9) which is absorbed on to a porous membrane. ENV9 represents a highly immunoreactive and conserved site of the HIV virus envelope. The presence of bound antibodies is revealed as a red spot after treatment with a protein A-Gold conjugate. The entire procedure takes less than ten minutes.

Each kit comes complete with all necessary reagents, controls and pipettes for 100 tests. No refrigeration is required. The kit is, therefore, suitable for clinics screening limited numbers of samples, emergency testing prior to transplantation or transfusion, and field testing in remote sites.

In evaluations carried out in Europe, Africa and in-house on over 2000 different serum samples, the sensitivity and specificity was shown to be equivalent to that of current generation HIV ELISA's. HIVCHEK™ is a simple, robust test which gives consistent, reproducible results.

Please contact Du Pont N.Z. Ltd, Phone (09) 277-8080.

Mp TEST — FOR DEFINITIVE DIAGNOSIS OF *MYCOPLASMA PNEUMONIAE* INFECTION

Mycoplasma pneumoniae is a common etiological agent in a broad spectrum of diverse human respiratory tract diseases and may be the most common cause of clinically apparent pneumonia. It is also associated at times with severe extrapulmonary complications.

The level of specific IgM antibodies to *M. pneumoniae* antigens rises early after onset of the illness, peaks in one to two weeks, then declines within eight weeks to undetectable levels. The level of specific IgG antibodies rises and peaks after three weeks, and may last a few years.

The two most common methods for determining the titer of *M. pneumoniae* antibodies in human serum are metabolic inhibition and complement fixation. The metabolic inhibition test is of limited vlaue, since it requires live organisms and the variation between assays is too large. The complement fixation test correlates well with the metabolic inhibition test; however a high ratio of false positive results is obtained because of the low specificity of the lipid antigens used. Furthermore, this method requires complicated reagent tittrations, and requires measuring the rise in antibody titer in two consecutive samples taken from each patient at least seven days apart, introducing a significant delay in the diagnosis.

A number of ELISA tests have recently been developed for the detection of antibodies to *M. pneumoniae*. Although they are relatively simple to perform, these tests determine total antibody level; as with the complement fixation test, therefore, testing of two serum samples may be required in order to arrive at a definitive diagnosis.

Diatech's Mp Test overcomes present testing drawbacks by introducing a sensitive and highly specific enzyme immunoassay for *M. pneumoniae* based on IgM capture, together with a sensitive and specific detection method based on specific *M. pneumoniae* antigens conjugated with alkaline phosphatase.

The high specificity of the antigenic fraction used in this test eliminates possible interference by theumatoid factor or by other respiratory pathogens. In addition the inclusion of colour in the diluents facilitates the identification of reagents and decreases the possibility of user error.

The Mp Test, therefore, by utilising differential determination of IgM antibodies,enables the detection of current *M. pneumoniae* infection by a single test.

Exclusive New Zealand Distributor for Mp Test is: Ngaio Lab, P.O. Box 4015, Nelson South.

URISCREEN — RAPID UTI SCREEN

Extensive clinical surveys have shown that 80% of the urine specimens to be cultured are negative or contain nonsignificant bacteriuria. Pyuria may also suggest infection, and may be present in low count or with negative bacteriuria. The presence of more than 10 WBC/mm of urine in asymptomatic patients suggest infection therefore evaluation of urine specimens for infection should include both bacteriuria and pyuria. Diatech Diagnostica has developed a fast procedure suitable for use in laboratories as well as in doctors' offices or at the patients bedside.

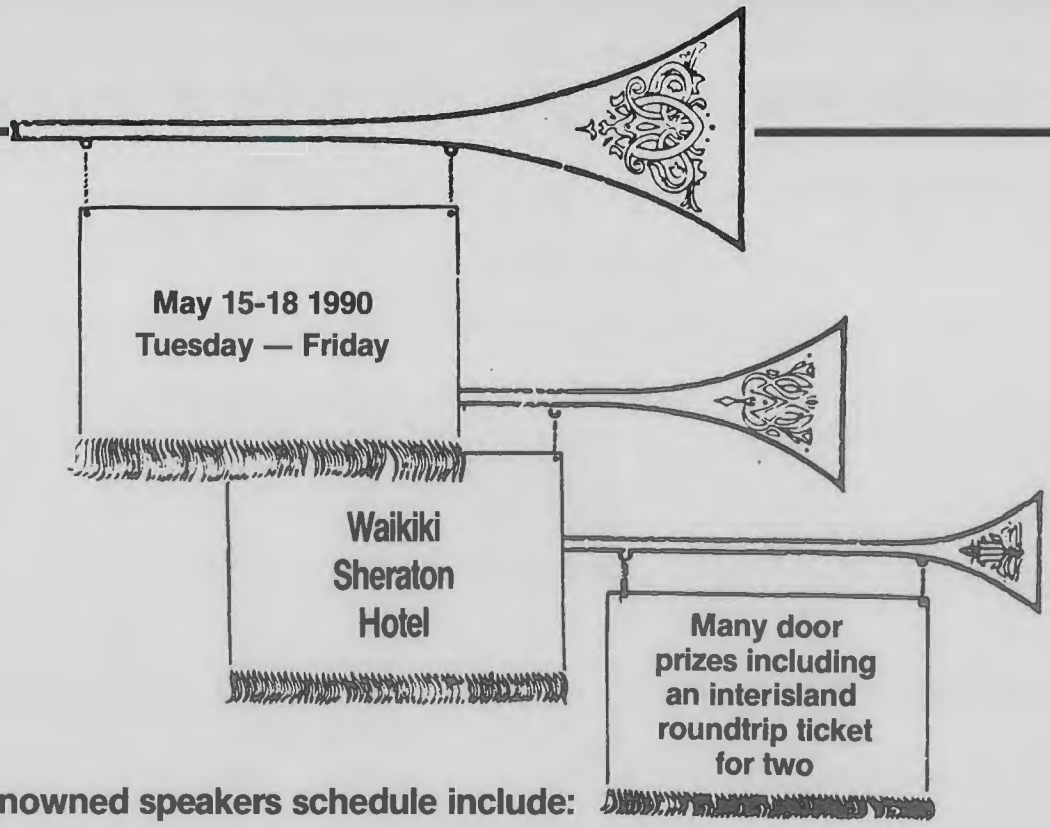
The Uriscreen Test is based on a proprietory method for testing for certain enzyme in urine indicating that the urine is contaminated or colonised by bacteria or that a pathological condition exists which should be investigated. The common pathological conditions indicated by this enzyme activity in urine include significant bacteriuria, pyuria, haematuria and tissue damage, from the kidney down to the urinary tract. The test is designed to screen and discard healthy urines that require no further investigation for any of the above mentioned conditions. It is simple, rapid and direct, and highly cost effective requiring no special skills or equipment. In recent clinical studies the test compared favourably with all other available methods. Sensitivity was 97.2% and the negative predictive value 98%. The test procedure requires 1.5 to 2mL of urine being poured into the test tube (one tube for each urine sample) and mixed gently for five seconds. The tubes are packaged in calibrated racks of 20 tubes. Four drops of reagent solution are added to each test tube which is mixed gently for five seconds. The results can be read after one to two minutes. Positives are indicated by foam forming across the diameter of the tube. Each sample may vary in the volume of foam generated, as illustrated in the picture. Negatives form no foam whatsoever, or a very small volume of foam which will dissipate. Uriscreen is available in 100 test kits for clinical laboratories or in a 20 test kit (including plastic transfer pipettes) designed for testing out of laboratories.

Exclusive New Zealand distributor is Ngaio Lab, P.O. Box 4015, Nelson South.

COMPANY AND AGENCY NEWS

Carl Zeiss N.Z. Pty Ltd has been appointed exclusive agent for the high quality range of rotary sledges and cryotomes by MICROM of Heidelberg, West Germany to market their complete line of microtomes.

MICROM is one of West Germany's leading manufacturers of high quality rotary and sledge microtomes complementing theZeiss microscopy range both for Routine and Research applications.



Renowned speakers schedule include:

Dr Sydney Finegold	Anaerobic microbiology
Dr Ellen Jo Baron	Co-editor of BAILEY & SCOTT'S DIAGNOSTIC MICROBIOLOGY
Dr Lee Hilborne	Recombinant DNA technology
Dr Wayne Grody	Medical genetics/Molecular pathology
Dr Christopher Frings	Laboratory Consultant, Toxicologist
Dr Douglas Triplett	Haematology/Coagulation
Dr Judith Barr	Major contributor in ASMT government activities

Special Topics

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Improving Laboratory Utilisation
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AND MORE . . .

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  - 250 V, 2.5A supply, high current at relatively low voltage. This versatile unit can operate in either Constant Voltage mode or Constant Current mode.
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