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350 million years of history uncovered in . . .

Fossil find by Monash team

MONASH: THE MAN

One of the dangers in naming universities after distinguished nationals is that students and staff may not know what distinguished the namesake from other nationals.

This was borne out in a recent ABC television program marking the publication of a new book on the life of Sir John Monash. In a snap poll, several Monash students revealed, at best, a hesitant knowledge, and at worst an almost total ignorance of the man Monash.

A copy of the book has now been presented to the main library. Seekers after knowledge may read in it the following quote from the university's first chancellor, Sir Robert Blackwood:

"All those who have been associated with the project . . . have derived great inspiration from the name Monash and it is their earnest desire that with the passage of time the University will become more and more a living memorial to the memory and ideals of a very great man."

(Write that out one hundred times!)

Still, the book falls far short of a full biography.

In a recent article on Sir John Monash - *The Vanishing Hero*, Andrew Spaul of the Education Faculty argued that history and biographical writing had been unkind to Monash - despite the efforts of the SEC and the Jewish community.

He believes that without a substantial biography, Monash will continue to fade into the background.

(It's interesting to speculate, incidentally, how much Melbourne University students know about Melbourne the man.)

FOOTNOTE: A few days after the TV program, *The Herald* evened the score with the students when, in a review of the book, it spoke of Victoria's only two remaining memorials to Sir John Monash - the statue outside the Shrine and the State Electricity Commission.

JOHN MONASH
CECIL EDWARDS



SCORES of fossil fish, 350 million years old and holding secrets to early life, are being analysed by the University's Zoology Department.

The fossils, found buried in billy country about 100 miles north-east of Monash, are of world-wide interest and significance.

It is extremely rare to find ancient fossil fish in such quantity and variety of type and so well preserved.

Professor J. W. Warren, who is supervising the excavation of the bones and the laboratory research, will detail the find to world experts at the ANZAAS conference in Brisbane, May 24 - 28.

"Hopefully the fish will give us clues about the evolution of the continents and time changes in the evolution of primitive animals" Prof. Warren told the Reporter.

"One very puzzling thing is that so far - and we have recovered scores of fish specimens - we have not found any invertebrates such as primitive crustaceans, clams or snails that might have served as food for the fish populations. We don't know what they lived on."

Prof. Warren said the first trace of the bones was made by a Senior Lecturer in Geology at Melbourne University, Mr. Marc Marsden, who was making a geological map of the area. Mr. Marsden brought his find to Prof. Warren who began an investigation of the area.

During the recent vacation the Monash Zoology Department and the Department of Geology at Melbourne University arranged for a bulldozer to be at the site and carve away the top layers of a hill to reveal the remains.

The fish date from the Upper Devonian period - fish have been known earlier than this but, with two exceptions, those found in Australia

have not been well preserved nor is there such a diversity of types found in one place.

Zoology is not saying where the field is. "It's disappointing, but I'm afraid true, that rock collectors would get to this place and souvenir specimens for the mantelpiece or for sale overseas," Prof. Warren said. "We've had a fossil site ruined in the past by claim jumpers and we intend to keep the locality of this one a secret."

Prof. Warren said there were six main varieties of primitive vertebrates in the remains -

- Acanthodians or "spiny sharks." These have primitive biting jaws and represent one of the first evolutionary steps away from open sucking mouths.

- Lung fish. The department has found lung fish that have a portion of their bodies protruding beyond the tail fin, which is not a characteristic of present day lung fish.

- Arthrodiros. These are armored fish with the head and front part of the body covered in bone. Several kinds have been discovered at this locality, all of which are now extinct.

- Paleoniscids. These have slightly more advanced jaw structures than the acanthodians and are considered ancestral to modern day fish.

- Crossopterygians. These are lobe-finned fishes that gave rise to the earliest terrestrial animals. So far only large scales of these fish have been found at this locality.

ABOVE: Staff from Monash and Melbourne Universities dig for the remains of the ancient fish. Already 60 crates of rocks have been brought back. Below: Jan Blinzler, 20, visiting the Zoology Department from Northern Arizona University, displays a section of rock containing lung fish.



- Problematica. There is a series of bony segments about 18 inches long that cannot at the moment be linked to any known group of animals. Prof. Warren suggests that it could be a primitive amphibian which would be a major find because at this time animals were first starting to get on to land.

The Monash Biochemistry Department will also be involved in the research as amino acids in the fish remains will be examined to help determine evolutionary change in the biochemical structures.

Prof. Warren said that considering the richness of the site there would be ample material to interest palaeontologists for 5 or 10 years. So far Zoology have brought 60 crates of specimens back to the laboratory.

The State of the Nation

Ever since the closing of Berkeley in 1964, student unrest has been a major part of the modern university scene in the U.S. A tragic, frightening culmination occurred in May and June last year with the slaying of students at Kent State and Jackson State.

The following months have been like the aftermath of a nuclear explosion—dead, still, eerie. Is it time for talks, compromises, answers? Or is the fuse still alight, burning towards another explosion?

Dr. J. C. Clevenger knows a lot about US universities. He has been associated with the administration of US higher education for almost 30 years and is now Vice-President in charge of Student Affairs at Washington State University.

Dr. Clevenger, who is at Monash for four months as part of his sabbatical leave, gave the following interview on US student problems to journalist Mieta O'Donnell for the Reporter.

Dr. Clevenger, a round-faced, genial man, started talking generally: "The recent turmoil and torment of educational processes is unprecedented in the history of our nation.

"As the crisis on the campus grew it reflected in the main the deep divisions and the polarisations that have eaten like a cancer into our American society."

Dr. Clevenger has first hand knowledge of these "divisions".

"Back home at Washington State last year we had student pickets and strikes," he said.

"I had talks with the students and you couldn't help but be impressed by their compassion and convictions.

"They were on the picket lines because of their deep belief that now is the time to stop all war and bloodshed and for ensuring that there is equality and justice for men of all skin colors and convictions.

"They wanted to express their convictions through the peaceful and lawful means available to them."

Dr. Clevenger, paused, looked around the empty Monash Council chamber that we were in, and continued: "I would distinguish these students from the hard core group who just want to destroy."

He believes the most critical days in American education occurred around the events of May 4 and 5 last year and the four weeks that followed.

"The invasion of Cambodia by US troops and the student deaths at Kent State and Jackson State triggered mass student protests, strikes and acts of terrorism and violence," Dr. Clevenger said.

"Many institutions closed and there were isolated incidents of violence in the form of fire bombing, dynamiting and injury to persons that will remain in the American conscience for many years."

Dr. Clevenger said that after this crisis point, American colleges and universities were now in the middle of a "thus far quiet and peaceful year, which has thankfully given us some time to review, reflect and to draw

some assumptions and plans for our future."

"But there is very little solace in the fact that only one third of our 2500 universities and colleges experienced protest activity and that only about 400 were affected by strike or institutional close-down or that the turbulence of that period has been followed by a quiet fall and winter on the campuses across the country.

"The real facts of life were the polarisation and deep division of our people, the harsh rhetoric and the profound and widespread mistrust in higher education," Dr. Clevenger said.

"Public reaction and backlash over campus disruptions and violence resulted in the governing boards of colleges and universities initiating sweeping changes in disciplinary procedures, plus community voter reaction at the polls in November, that was generally detrimental to the welfare of higher education.

"At Washington State there were three key bills before the voters of our state that we felt were quite important to the ongoing fiscal health of higher education in the state—all three were resoundingly defeated."

Confrontation-weary

Dr. Clevenger said three main reasons had been raised for the diminishing unrest at the universities so far this year.

• Students were weary of confrontation tactics and felt that this approach for bringing change had been unproductive.

The bombings and other forms of violence had instilled into most thinking students a profound fear of repression and violence.

They saw the end result of the actions of the small band of hard-core revolutionists to be only revolution as no viable alternatives were offered.

• The student demand for representation in the governance of their colleges and universities was being recognised.



"Rather than resorting to hard line repression, a great many of our colleges and universities have moved rapidly in the direction of placing faculty, students and administrators on peer level involvement in decision making through combined faculty and student committees of all kinds," Dr. Clevenger said.

"Within the last two weeks at my own university, the student body and the resident instructional staff have approved the organisation of a 100-member university Senate.

"Though some of the faculty are not happy with the kind of challenge this offers to the traditional faculty power structure, I think this is a move in the right direction," he said.

"Greater trust in students and greater student trust in the faculty members can bring resolution to many of the problems of the past."

• Many people believed that both the rhetoric and the actions of confrontation tactics were being muted as a direct result of the adoption of toughened discipline and governance procedures.

"University expectations for student conduct have been more clearly defined with penalties for the infraction of basic campus rules and policies," Dr. Clevenger said. "In some cases, campus law enforcement staff have been doubled or even tripled - in others, court-like discipline procedures have been adopted, including the employment of hearing officers who have had experience on the state bench.

"State legislatures have intruded into the enforcement of conduct rules for students at public institutions—there are 22 or 23 states where this has been done.

"From my own experience I believe that US colleges and universities have the ability to act decisively on problems of disruption and violence. We have no alternative but to meet it head-on if we are to retain any degree of public support and confidence."

Dr. Clevenger said the real challenge to American educational institutions came from the attempts to politicise the educational community - when the voice of reason was silenced, and the university became a political entity, then academic freedom ended and there could be no true university.

"In some ways we are a different community from the larger community, being more selected, with a fixed purpose of the search for and the dissemination of knowledge.

"This selected community has the right, the ability and the prerogative to develop its own regulations as a community of learners and teachers. Outside law should only be brought in as a last resort to protect people.

"I believe there is a built-in resentment to police action - irrespective of the way they may handle themselves, there is a sense of invasion," Dr. Clevenger said.

"As an administrator and counsellor I hope very much to get the kind of community sense of responsibility among faculty and students which will permit us to handle our own problems.

"At the University of Illinois, a judge of national repute was hired for discipline hearings using full court procedure and resulting in over 10,000 pages of testimony. This is a pretty involved and expensive process.

"I would suspect there will be more of this as our proceedings on US campuses become more and more legalised. I can remember when if a student broke the rules, the dean called him in and said - 'pack your bags son'—now the student is advised in writing of his transgression of the rules and is given an opportunity to respond in writing and then the whole case is put before a committee with careful attention given to due process.

"A counselling situation is far more preferable to such court-like procedure. The attitude could be - so he's made a mistake but maybe he can learn from it and so become a more valuable part of the education community.

"The more you move to court-like procedures, the more you move to polarisation," Dr. Clevenger said.

"Polarisation occurs within the campus and between the campus community and the non-campus community which unfortunately doesn't really understand all the things that are happening.

"After last spring there were a number of meetings across my state and people were gathered to discuss the 'problem of the campus' and they would invariably talk about it being 'our' university. In the end the public universities DO belong to the people who created them and who do support them and there should be a situation of harmony, not of polarisation between the two."

Protest a part of life

To conclude Dr. Clevenger said the current campus peace and quiet could not be taken for granted. "The mood of protest is part of the life of the '60s and '70s," he said.

"The conditions that produced the unrest are still with us—we are still at war in South East Asia, we still have the anguish and the unresolved problems of racial inequality and injustice, and educational reform is proceeding slowly.

"But if students feel, and I believe they do, that effort is being made to bring resolution to these problems and that they are a part of it and are being listened to with care - then the unrest may be behind us.

"If hypocrisy, double dealing or unfairness is experienced then the troubled waters will begin to boil again," Dr. Clevenger said.

"There is a feeling of frustration in the young people of today because they just don't think that the world is moving fast enough to resolve its problems.

"Their principal concern is man's inhumanity to man - and when you look at the troubles of racial conflict, you realise that if we have compassion and real concern for our fellow man then most of these problems will disappear."

Cigarette survey:

TAR CONTENT GOES DOWN

The second survey on cigarette tar contents by Professor J. M. Swan, professor of organic chemistry, has been released by the Anti-Cancer Council of Victoria.

The new figures, based on 56 brands sold in Australia, show that the average tar yield has fallen since the first survey in 1969.

The council says that the popularity of low tar brands has put strong pressure on the manufacturers to lower tar. Only one brand had a tar yield over 25 mg compared with six in 1969.

The reason some brands were now yielding less tar was that they were burning faster while NOT being puffed, the Council said.

"All cigarettes tested produced significant amounts of cigarette tar - a well-known cancer-causing agent."

TAR YIELDS IN MILLIGRAMS PER CIGARETTE - MARCH, 1971 -

Hallmark (F), Ransom (F) 5, Hallmark (MF) 7, Craven A Special Mild (F) 9, Rothmans Number 7 (F) 11, True (MF) 12, Park Drive (F), Albany Trim (F), Rothmans (F), Turf (F) 13, Edinburgh (F), Idlewild (F), Capstan (F), Trent (F), Peter Stuyvesant (F), Monarch (F), Phillip Morris (F) 14.
Escort (F), Kent (F), Galaxy (F), Ascot (F), Players (P) 15;
Churchmans (F), Senior Service (P), Consulate (F), Craven A (CT), Craven A (F), Salem (MF), Dunhill (F), Camel (F), Players (F) 16;
Marlboro Red (F), Kool (MF), Turf (P), Cambridge Blue (F), Alpine (MF) 17;
Viscount (F), Fiesta (F), Albany (F), John Barry Deluxe (F), Chesterfield (F), Cambridge Green (MF) 18;
Benson and Hedges (F), Belvedere (F), Capstan (P) 19;
Rothmans (P), Benson and Hedges (P), Chesterfield (P), Phillip Morris (P) 20;
Gauloise (P), John Barry Slims (F) 21;
Temple Bar (P) 22, Phillip Morris Executive (P) 23; Camel (P) 24; Pall Mall (P) 25; Chesterfield (KSP) 26;
(F = Filter, P = Plain, M = Menthol, CT = Cork Tipped, KS = "king sized")

Color TV on campus



The university last week officially took delivery of a complete educational color television unit, valued at \$250,000.

The unit was a gift from Smith, Kline and French Laboratories (Australia) Ltd., pharmaceutical manufacturers. It includes color cameras, monitors, projectors, a portable studio, lighting equipment and a mobile control unit.

Picture above shows, from left, Peter Boyle (maintenance technician), Richard Crompton (camera control operator) and Don Black (senior maintenance technician) checking over the production control area of the van in readiness for the handing-over ceremony on Friday. (Photo: V. Kohout).

'REVOLUTION' IS UPON US

-says Robin Boyd

The biggest sub-revolution yet in the modern movement of architecture has begun, according to architect-author-critic Robin Boyd.

It is already affecting advanced architectural thought so radically that it could produce an entirely new approach later in the '70s.

Mr. Boyd made his prediction last Wednesday in the inaugural lecture of a series of six arranged by the Faculty of Arts. Other speakers in the series will be Dr. J. A. L. Matheson, Dr. E. Graeme Robertson, Professor F. W. Ledger, Mr. Harry Seidler and Mr David Yencken.

The new revolution was married to much of the youthful social dissent of the day, Mr. Boyd said. Its followers thought in terms of traffic control, pollution, slum rents, conservation, housewifely boredom, afforestation, noise control, civic politics and a dozen other social problems.

The movement had already pushed forward at least one genuine hero - American professor Robert Venturi, who had been the first to translate the Pop Art movement into architecture.

Venturi, however, did not use the word "pop" - he preferred "inclusivist", meaning the opposite of esoteric exclusiveness, the refined taste of architects who had preceded him.

"His work displays a breathtaking banality," Mr. Boyd said. "The art and intellectuality in it is his staggeringly original idea of using ordinariness as an art form."

Some of Venturi's statements were deliberately calculated to rock the foundations of modern architecture. Should the outside of a building reflect what goes on inside, as modern architectural dogma insisted from the start?

Venturi's reply to this was: "It's much cheaper to do something straight forward in the first place and then add something, than to distort the whole building to get 'expression'. Art, in this sense, is unnecessary eloquence."

Mr. Boyd said that underneath every responsible human's apparent insensibility to his shelter there was a desire for some sense of reality in the background of life.

OPEN DAY '71

Monash University's fourth Open Day will be held on Saturday, July 10, from 11 a.m. till 5 p.m.

Last year 36 University departments and organisations took part and, so far, 22 have agreed to participate this year. In the near future approaches will be made to all those whose assistance will be required for the success of the project.

Mr. R. R. Belshaw (Careers and Appointments Office) is Executive Officer for Open Day. He would welcome any ideas or suggestions, and if these could be given at this early planning stage it would be helpful.

"THE SILENT MINORITY"

By BRIAN DEVINE
Part time Students' Representative

JUDGING by observed results, part-timers must surely be the most inarticulate identifiable group at Monash. Over the past few years several attempts have been made to communicate with them en masse, either by direct mailings or through articles in student publications and the Student Orientation Handbook.

In spite of these efforts, fewer than 80 students out of a part-time population of approximately 1800 last year asked for P/T identity cards at the Union Reception Desk and indicated that they would like the student newspaper mailed to them.

In the past part-timers have won, through group action, concessions in parking, library access, late opening of the bookshop and the Union reception desk, and in the provision of late lectures and tutorials.

Although the University administration has recently expressed its willingness to consider further changes, it is difficult to argue the need for these in the absence of

Assessing the assessment

The Department of Politics is switching to a new set of assessment procedures this year.

Professor Herbert Feith, chairman of the department, told the Reporter the move had been made partly in response to student suggestions, especially coming from the department's Student-Staff Committee in third term of last year.

The new procedures mean that for third year students the drudgery of final year exams may be eliminated and instead they may be eligible to do a 7000 - 8000 word project.

But the right to do this project will

depend on whether the student obtains 30 marks out of 50 on his essays and assignments in the first two terms.

In second year pass units a 60:40 marks system will be operating which means that the final exam will only be worth 60 marks and essays and tutorial work will make up the other 40 marks. Oral examinations may be given in the case of students whose marks on their essay and assignment work is markedly discrepant with their marks in the end-of-the-year examination.

The new system will affect 306 second year students and 112 third year students.

Prof. Feith said that the new system was to be an experiment which he and other staff members would be assessing.

"As an experiment it has grown out of a great deal of discussion among members of the politics staff," he said.

"It is important to be continually asking questions about the effectiveness of our teaching and assessing methods and attempting to see how they relate to our educational goals."

The system was not really a revolutionary one. Similar methods had been employed in the Sociology Department for several years, he added.

CHEMISTRY TALKS

The Monash Research Students Association is helping to organise a series of four post-graduate student lectures and discussions in chemistry to be held during April and May, at Melbourne University.

The lectures, which will be in the graduate union, also involve the Melbourne University Graduate Union, the Melbourne University Research Students Association and ANZAAS (Victoria division).

Phillip Nagley, from the Biochemistry Department at Monash will give the first lecture on Tuesday, April 20 at 8 p.m. on the storage and utilisation of genetic information in biological systems.



Perspective on teacher strikes

TEACHER militancy, including strike action, has become world-wide in the past 20 years and appears to be part of the larger phenomenon of white-collar unrest.

In the US, for instance, there have been 500 stoppages by teachers in the 1960s—including 425 since 1967-68. These represent 5.23 million man days lost.

Australian teacher unions have used direct-action only since 1965 (except for a three-week strike in Western Australia in 1920), and it has been confined largely to Victoria.

In this time about 50,000 working days have been lost - that's not too much compared with the previous US figure.

Teacher stoppages have occurred in Queensland (1 in 1968); NSW (3 in 1968-70); VSTA (9 in 1965-70) and the Technical Teachers' Association of Victoria (4 in 1967-70). All of these stoppages have been of one-half day or one day duration.

The VSTA and the TTAV have also held official stoppages at individual schools since 1969, with the VSTA having more than 40 stoppages over "control of entry", including prolonged stoppages at Northcote, Horsham, Pembroke and Lilydale high schools.

Yet, overall, the record of teachers' strikes in Australia, compared with other countries, is moderate and short.

It appears that throughout Australia, with the exception of the VSTA and TTAV, teachers are generally unwilling to employ strike-tactics, even as a last resort in conflict situations.

This is borne out not only from statistics alone but from instances of union ballots conducted to determine rank and file attitudes to strike action.

In the Victorian Teachers' Union a 1965 poll of 11,166 members revealed that only 31 per cent were prepared to engage in strike-action, while in the NSW Teachers' Federation in an 'open' ballot of 17,000 members during 1969, only 47 per cent were in favor of a one-day protest stoppage. These returns can be compared to the

The rumblings of discontent in State schools are rarely out of the news.

A prime cause is the Victorian Secondary Teachers' Association. Two years ago this month, the Association introduced its controversial "control of entry" scheme—the teacher qualifications campaign that is still causing stoppages in schools.

More recently, the VSTA called the prolonged strike at Melbourne High School over the Teachers' Tribunal. The Technical Teachers' Association has been slightly more subdued, but still willing to go on strike. Thousands of teachers from both divisions went out for one day last week.

Andrew Spuall, senior teaching fellow in the Education Faculty, is studying Australian teacher unions since World War Two for a Ph.D. In the following report, he talks about some of the issues raised in these strikes, and compares Victoria's experience with other stoppages in Australia and overseas.

English National Union of Teachers' ballot in 1970 in which over 80 per cent favored strike-action.

This reluctance of teachers to embark on strike-action is a product of several related factors, the most obvious being the relative non-existence of a strike ideology.

Teachers have always been confronted with a conflict of interests between their loyalty to their professional association and their responsibilities to their clientele. Many teachers feel that their pupils should not become 'meat in the sandwich' in their disputes.

Furthermore, the fact that they provide a public service inhibits the willingness to strike. Only the VSTA has developed a strike ideology which emphasises that its industrial action is for the betterment of both pupils and teachers.

High sensitivity

Nevertheless, the sense of professional responsibility, plus the teachers' sensitivity to public opinion, runs high in other Australian teachers' unions and tends to ensure that even if teachers' strikes occur they will be centred on professional issues and not just salary disputes.

It has also ensured that strikes of an ideological nature, such as occasionally occur in France, or strikes which stem from inter-organisational disputes, such as in the

US between the National Education Association and the American Federation of Teachers, are avoided.

Another factor which tends to restrict the growth of the teachers' strike is the occupation's heterogeneity. This is found in the different teaching levels and usually expresses itself in union structures.

In Australia, with the exception of Victoria, all State school teachers are organised into the one teachers' union.

In Victoria there are three unions representing primary and post-primary school teachers, and it is the latter which has produced the most strike activity. However, the question of whether Australian graduates and/or secondary school teachers are more disposed to strikes has not yet been examined in any detail.

Non-occupational factors such as social background, age, political affiliations and sex may also influence the attitudes towards strikes of Australian teachers.

A US study by Cole indicates that the young teacher and the male teacher appear more willing to support strike actions. But in the UK a survey by Margerison and Elliott does not entirely support the former argument and it rejects the view that young teachers are more militant than other teachers.

In Australia, most teachers' unions are numerically dominated by female members, but the two exceptions are the VSTA, with about 35 per cent females, and the TTAV,

with 20 per cent females in their membership.

Within the teachers' unions, there is one significant constraint on strike activity—the strike-ballot clause. The ballot allows the membership a direct vote on the strike question; it also allows the teachers to hide their fears of reduced incomes, victimisation, and their political conservatism, behind the anonymity of the secret ballot.

As such in Australia there is not one example of a strike-ballot in teachers' unions which has resulted in favor of a strike-action. Significantly, the VSTA does not have to hold a strike-ballot to call a stoppage, while the TTAV and the NSW Teachers' Federation can call one-day stoppages without a membership plebiscite.

There is one final factor which tends to constrain teachers' unions that are registered to a state industrial commission. These unions in NSW, Queensland and Western Australia do not enter lightly into strike-action, because of the risk of court penalties. In Victoria the three teachers' organisations are not registered as trade unions.

The above factors appear to be the most important constraints on teacher strikes in Australia. But it should be stressed that teachers' attitudes towards industrial and political action appear at the moment to be in a transitional stage.

If this is the case, and provided education systems fail to respond to demands for major improvements, then teachers' strikes in Australia may become more widespread and less moderate.

Moreover, if strike-action proves successful in terms of meaningful gains in education, resistance to the strike ideology would collapse.

Teachers, especially those from middle-class backgrounds, would find the strike a new social experience and its psychological effect (an experience similar to that experienced by people who participated in the Vietnam Moratoriums) would only enhance their willingness to use the strike-weapon in future conflicts.

ALL IS NOT MILK AND HONEY IN TOMORROWLAND

Last month in the Reporter, Peter Rogers painted a rather rosy picture of the employment of science and engineering graduates by industrial concerns.

At the risk of over-generalising my personal observations and the reliable views of those with whom I have enquired, I believe that non-technical graduates have cause to be pessimistic about their future careers with commercial and industrial bodies. I refer specifically to graduates in law and economics.

There is an abounding deficiency of competent, tertiary-educated men in industry, in both professional and administrative capacities. Australian industry sadly lacks decision-makers and progressive planners who can think through conventional limitations and render responsible advice. Company employment could provide many rewarding opportunities and intellectually stimulating careers for

non-technical graduates. But employers tend to dominate non-technical graduates. Why?

* There is prevalent in the world of commerce the incomprehensible philosophy that conformity is preferable to innovation and cogent reasoning. The catch-cry "conform, don't think" is nurtured partly by the conservatism of the gentry of vested interests in the Board Room, partly by the ineptitude of senior executives, partly by the comfortable inefficiency of post-war industry and partly by an unenlightened society which is quite indifferent to commercial efficiency.

* Senior executives seldom delegate problem-solving tasks to graduates, who, although better equipped to solve problems, are reduced to clerical assistants.

* There is an alarming proportion of executives who are unable or unwilling to make responsible decisions, beyond a superficial level, for a variety of reasons.

By COLIN O'HARE
Lecturer in Law

They congeal in the relative security of conventional systems and suppress their subordinates accordingly.

* Untrained executives, understandably, defend their elevated positions very jealously. They allow younger prospects little opportunity to display their talents and utilise their expertise. The bureaucratic system of promotion by seniority is still widespread.

* There is a tremendous waste in industry in the form of unproductive manpower. For reasons of status, clerical jobs, which could be capably performed by non-graduates, are allocated to graduates. Superiors tend to overlook that a man developed to a high level of thought process will become very quickly dissatisfied with a task which is menial to his training.

* A company is generally less concerned to utilise the graduate's capabilities in a short-term analysis than to indoctrinate him for the executive office he will eventually hold. Again his superiors neglect to appreciate his discontent with idleness and irresponsible activities during the long interim.

I could go on. But the more important issues are what this means to the graduate and to industry.

If the graduate is so motivated to accept repressive conditions, he is assured the security of a good salary, regular increments and exorbitant fringe benefits. In return, he is obliged to subordinate himself to the established conventions of his superiors as he automatically progresses up the ladder of promotion. His only real concern, apart from his dignity, is for the more enterprising graduates who will be pressing for his prominent position.

If the graduate, on the other hand, is proficient and conscientious, his lot will be one of discouragement and disillusionment until such time as he seeks employment elsewhere, perhaps sacrificing financial reward, to derive some intellectual satisfaction.

The irony of it all is that the employer loses an indispensable employee for failure to implement an organisation for their mutual benefit. The domination of the competent graduate is remarkably successful in achieving what seems to be the primary objective of Australian commercial institutions - the perpetuation of mediocrity.

'Political' solutions more urgent than 'scientific'

— Clive Bunn*

Early last year, one of the three Harvard scientists who had isolated a single gene a few months previously abandoned research to become a full-time political activist.

His name is Dr. James A. Shapiro, then research fellow in Bacteriology and Immunology, and I think his ideas bear serious consideration by all scientists and those contemplating technological careers.

The following quotations from a Boston newspaper at the time, and from "Science", volume 167, number 3920, convey Shapiro's feelings and motivation: "Whatever I could do in the lab is useless at this time. The only constructive thing that people can do right now is to challenge the present political system.

"I've been unhappy about science for a long time, because of the institutions that I work with and the practical consequences of what I do. After all, you can be ghetto-ized in the lab or in the university. I felt shut out from other human beings."

Shapiro's central thesis is that the most important problems the country faces, such as health care and pollution, need political solutions more urgently than scientific ones.

He contends that "scientists are ultimately responsible for the political consequences of their work, and it is in their own interests to work for political change... basically, they (scientists) are just workers and they should work with other people on such issues as medical care, pollution, and hunger."

Shapiro also believed that "the people" should decide what work scientists should do, and claimed: "The shibboleth of technical expertise is preventing people from making decisions that are not beyond their intellectual capacity to understand."

*Condensed from a paper given by Clive Bunn, Ph.D. student, Biochemistry Department, to first year students in a series on "The Biosciences in Life and Society".

While it is not surprising that these anti-elitist views would provoke some reaction, the hostility of the reaction in the "Letters" columns of subsequent editions of "Science", reveals the entrenched bigotry of the academics concerned.

Shapiro was accused of being "anti-scientific", and "anti-intellectual" (and criticised for not wearing a tie at lectures). It was claimed he has a "suspicion of knowledge", and was preaching "dangerous attitudes that had plagued man for centuries", which were "the subversion of science to the needs of the state."

A letter by Fresco et al stated that "... the fear and rejection of new knowledge provides no solution, not even a temporary one, and only makes for stagnation and decay of the spirit."

"Enough scientists now"

Not all the letters, however, were hostile. Salvador Luria, 1969 Nobel Laureate, said "I think it is important that there are scientists like Shapiro who point out the misapplications of science." When asked about the loss of Shapiro from science, he went on, "There are enough scientists as it is."

Shapiro's two collaborators - Jonathan R. Beckwith and Lawrence J. Eron - were concerned that their discovery might accelerate the movement toward genetic engineering or eugenics. "The more we think about it, the consequences of our work seem frightening rather than beneficial," Eron said.

Throughout a science degree, students are subjected to an endless series of sterile lectures and boring practicals.

The important thing about a science course is not what it teaches, but what it doesn't teach. There is no consideration of the uses to which your technological skills will be put, no consideration of your

responsibilities as scientists and as educated citizens.

Most students come to university with values updated from, but essentially the same as, their parents. Humanities students studying role and position of individuals and groups in society are led (hopefully) to reassess these values, and to redefine their own role.

As there is no such testing of values in a science course, the only viable method of reassessment is by involvement in the political issues raised by humanities students. The realisation gained from such experience is that you are a political entity, because you perpetrate a certain system of values by living and working in a society. You are not "neutral" because you work in the amoral, "value-free", "objective" field of science.

The danger in a science course is that it teaches that all (or at least, most) problems are solvable in objective terms (without political or emotional bias) by choosing a suitable frame of reference and applying logical techniques within that frame. There is a tendency to worship the scientific method.

But this system is not value-free, for your choice of a frame of reference will in itself reflect your political and social values. It is, I think, essential that science students involve themselves in the political struggles in this "enfant terrible" of Australian universities, in order to realise what their prejudices are, and to challenge the myth of scientific (and academic) neutrality.

I shall close by quoting from a letter to "Science" (168, No. 3937) by Luigi Gorini, which articulates these views admirably.

"Second, it is important to stress (as Beckwith and Shapiro did) that the only way to prevent misuse of our scientific discoveries is by introducing morality and social responsibility into our governments. Therefore it is not only advisable, but imperative for a scholar to be politically active. Finally there is a common tendency (as in the Fresco letter) to consider the community of scientists as a leading social elite. It seems obvious that scientists should share experiences and responsibilities from a position of equality with all other sectors of the society if efforts to bring peace and justice in a more livable world are to be successful."

Noise research needed

— Professor R. G. Barden

MUCH more could be done by modern technology to counter the problem of noise-induced hearing loss, the Chairman of the Mechanical Engineering Department, Professor R. G. Barden, told a recent seminar on noise.

"Post-design measures usually end up as ad-hoc measures to counter a nasty situation," Professor Barden said.

Professor Barden, who was speaking at a seminar at Warburton organised by the Australian Acoustical Society, said this sort of "palliative action" tended to be costly.

"It is only in recent times that noise and vibration control have become equal partners at the technical design stage - the time to really consider noise - in the context of man, machine and environment."

Professor Barden said that in some industrial environments the worker was at risk because of likely hearing impairments.

"If control measures are taken too far then the industry is at a risk because of the

heavy cost of remedial measures and if attention is not given to these then there is the possibility of the risk compensation," he said.

"A compromise has to be found. This obviously depends on enlightened management willing to do its best in the circumstances, and the workers themselves in making the most of protective systems for their benefit."

Professor Barden said he believed a controlled research experiment was necessary; this would involve a large group of people preferably exposed only to occupational noise and another control group assumed to be non-noise-exposed.

"We need to study these groups for a long time - a time expressed not in days but years."

Professor Barden told the seminar that migrant language problems were made worse because they often worked in noisy surroundings where it was difficult to hear.

Dr C. F. MOPPERT, Senior Lecturer in Pure Mathematics, writes on...

A Utopian University

I remember that some years ago a scientist advocated what he called the "teleological approach": if you want to do something, keep your aim in mind and consider everything at your disposal, selecting the useful and rejecting the useless.

He maintained that, for example the ancient Egyptians would have been able to build a rocket powered aeroplane had they wanted it and had they adopted the teleological approach.

I think there is something in this and it is for this reason that I put forward my ideas concerning the ideal university. As I am aware that there are as many ideal universities as there are minds, I am not afraid of opening many sentences with "I".

At one stage of my studies I enrolled at the University of Zurich. At this time, the theologian Brunner was rector. There was a short ceremony for the new students and Brunner made a speech.

He said: "In this University there are many doors. They are all open to you. Make use of this, go in. When you have nothing else to do, sit in at any lecture."

I followed Brunner's advice fairly often. If I did not quite understand what was going on, at least I saw what kind of things other people were attempting to do.

I would like similar advice to be given to our students and to the public in general. My utopian university is open to everybody. Scientists of all denominations are there to be seen and heard by anybody who wishes. No one works behind closed doors.

So far I have described what is not in my university (namely enclosures).

Ask any question

What is, then, to be found there? The university is a place where any question can be asked. It might be answered, or it might be analysed as to whether it is meaningful, and if it is not so, it might be dismissed. It might be found that it is unanswerable or that at present there are no ways of answering it. It may happen that no one is available who could answer it. In this case, the university would help to locate people who can answer the question.

At the university there are people who try to formulate answers to some questions. These people welcome anybody who is willing to co-operate. There is no sanctity about these people, there is no "Research" with a capital R. Anything which is done is done on a purely voluntary basis. Work is

equivalent with pleasure, there is an atmosphere of pleasure and satisfaction. People do what they like to do.

At present, many students enter the university under an illusion. They feel they may come closer to the substance of things by coming here. They think they may learn Mathematics, Philosophy, Poetry, Music, etc. They are disappointed when they find no such thing. They only learn techniques. It is a grave fault of our civilisation to have made this misunderstanding possible.

If it were not a misunderstanding then the Mathematician would be a thinker, the professor of Philosophy a Wise Man, the professor of Poetry a Poet and so on...

About my utopian university there is no such nimbus. Nobody expects of his members more than that they are enthusiasts and relative experts in their field.

The library in my university is small. All books are printed on paper which disappears within two years. Any scrap of information which is used there is reprinted after its use (on the same kind of paper).

There is no race for priority. If somebody hears that another person is working in the same field then he gives up. Whether a result is published or not is

unimportant. If somebody works on a problem which he then finds was answered 200 years ago, he does not mind. Everybody in my university is aware of the fact that his work is pleasant but unimportant. The enjoyment is the essence.

I might have created the impression that I contradict myself. First I say that a function of my university is answering questions. Then I restrict my library and allow people to do work which has been done before.

Answer not important

There is no contradiction: it is a pleasure to ask a question and it is a pleasure to endeavour to answer it. The answer as such is unimportant.

The importance of this utopian university cannot be overestimated. It is one of the last patches left which have not been scorched by utilitarian motives.

Also, for almost every person going through a university, it is the last time in his life where he does not find himself between the millstones of utilitarian motives. It is the last time he can ask openly: What on earth for?



Spanish-born author, Lucius Junius Moderatus Columella, doesn't like the fair sex. He says that women "abandon themselves with luxury and idleness."

Columella believes that women have a "distaste for home-made garments and a perverse desire to purchase clothing for large sums and almost the whole of their husbands' income."

He maintains that "the female sex has been provided for the care of the home, the male for the out-of-doors and open-air activities."

Those words were written in the 1st century—or about 1900 BWL (Before Women's Lib.).

Columella was a farmer in the Roman province of Cadiz in southern

Wine, greediness, superstition, sleepiness — and the society of men



Spain. He was an agricultural writer and the quotes come from a chapter headed "The Baliff's Wife and Her Responsibilities" in his 13 book treatise on agriculture.

The original is in Latin and the "baliff" was the equivalent of a farm manager. The mammoth 700-page work has been indexed over the last four years by the Classical Studies Department at Monash for publication in Sweden.

The Monash work, which is due to be published in April, is based on the editing of Columella by two Swedish scholars, Lundstrom and Hedberg.

The project's chief investigator was Gavin Betts, senior lecturer in classical studies and an avid collector of ancient books. His assistants were Mrs. Pat Waterson, formerly a teaching fellow in the department, and Mrs. J. Rivers, of Language Services.

Mrs. Waterson's job was to painstakingly go right through the books, coding all the words to a pre-determined code of tenses, verbs, adjectives, prepositions, nouns, etc. Mrs. Rivers put this work on to tape to be fed into the Monash computer.

After this Mr. Betts added further codes, edited the computer output and worked the material up into proper dictionary form.

A couple of examples may help explain it... "Uolunt" has been coded 5a (auxiliary verb) and "etiam" is 6b (adverb before word or expression modified).

A program was made for the computer which sorted the words in alphabetical order and recorded how many times it occurred and where it occurred.

The finished index will be something like this - pastoris (gen.),

7.3.14, 7.5.21. This gives the word, its grammatical case (gen.) and the places where it occurs - book 7, chapter 3, section 14 and chapter 5, section 21.

What use is all this work? According to Mr. Betts: "Marked grammatical changes were taking place in Latin around this time and grammarians will be able to detect these changes in the index. Scholars can determine how often the words were used and in what way."

"Columella had a definite style of his own and he is a valuable author for detailed study. And of course those interested in the history of agriculture can use the index to pick up what Columella has to say about farming in the Early Christian world."

Beauty induces sloth

A bit more 1st century philosophy from Columella - it's fascinating reading. Still on the subject of women he tells the young man what he must look for in a wife...

"She ought to be young and have sound health and neither have an ugly appearance or on the other hand be very beautiful; for unimpaired strength will suffice for long vigils and other toils, and ugliness will disgust her mate while excessive beauty will make him slothful."

"So care must be taken that our baliff is not of a wandering nature and does not avoid his wife's company, and that, on the other hand, he does not waste his time indoors and never far from her embraces."

"It is also of the first importance to observe whether she is far from being addicted to wine, greediness, superstition, sleepiness, and the society of men, and whether she readily grasps what she ought to remember and what she ought to provide for the future."

"Also she will have to be absolutely convinced that she must remain entirely, or at any rate for the most part at home; and that she must send out of doors those slaves who have some work to do in the fields, and keep within the walls those for whom it seems there is some duty to perform in the villa."

And finally to remedy sickness in animals, Columella suggests a mixture of red wine and garlic. That seems a sure way to have a drunken cow with bad breath.

Columella says: "Lassitude and nausea also can be dispelled if you force a whole raw hen's egg down the animal's throat when it has eaten nothing."

College systems fail

Dear Sir,

Our colleague from Humanities, Mr. E. Orr*, undoubtedly made several justifiable points in his analysis of this University (Reporter No. 1), but there are two points over which I must disagree.

He seems to have a fascination with the college system - the separation of the university into groups of 30 or so academics and 3000 students.

If this type of system is ideal for a university perhaps Mr. Orr would like to give his analysis of why the attempt to set up a College system at LaTrobe University has failed.

Secondly Mr. Orr is living under a great misconception if he believes that "Monash closes at 5 p.m., and runs 25 weeks a year." To continue his quote: "Students and staff do their work and get out as soon as possible. The real world is elsewhere - and the only positive stimulation comes from activist extravagances, put on with the loyal support of the University Blimp."

That might be true of his world - I don't know. But it is not true of those university departments where scientific, engineering and medical research is done.

There the 25-week university year is a big joke. Research, seminars, formal and informal discussion goes on the year round - and staff and students alike complain only that there is not enough time.

-P. I. GLETT,
(Alias Gordon Troup, Physics)

A student in court

Dear Sir,

Mark Taft, a 4th-year Arts student at Monash University, appeared at Box Hill Court on March 1 for refusing to register for National Service and was fined \$100. Mark Taft is also a prominent member of the Australian Communist Party.

His stand is not that of a conscientious objector. His refusal to register is a protest

LETTERS TO THE EDITOR

against Australia's support for American policy in Vietnam, which has expanded the war into Cambodia and Laos under the guise of Vietnamisation in reckless pursuit of the goal of military victory.

We believe that many more young men have refused to register than have faced prosecution. Only those who have taken a determined stand against the Indo-China War have been singled out. We, as members of the Staff-Socialist Group of Monash University, and as individuals, have campaigned against Australian involvement in this political war on many levels. In particular we support the opposition of Mark Taft to the war. Moreover we deplore the obvious political victimisation of one of our students.

-Brian Brogan (Economics), Dennis Douglas (English), Ian Turner (History), Margaret Corris (History).

Challenge

Sir,

On Tuesday, March 2, during an Orientation Week address, Dr. R. Birrell of the Sociology Department stated that he "sympathised" with those students who last year invaded the Careers and Appointments Office as a symbol of 'capitalism on campus', which Dr. Birrell agreed was an increasing threat to Monash.

I would like to ask Dr. Birrell to clarify and expand his position on this matter in your columns, particularly in regard to the following question:

Is Dr. Birrell in favor of the principle of university autonomy from outside interference in any society?

What does he think of the following statement by members of the Monash Labor Club:

"If the university did survive after a Socialist Revolution, it would differ from

existing universities in so far as instead of producing technicians for capitalism it would supply workers and cadres for socialism."

(Left Action Conference, April 1970)

From this statement, it is clear that the occupation of the C. & A. Office was carried out by people who don't believe in the university's freedom from society. Their only objection is here that it happens to be from (in their view) a capitalist, not a socialist, society.

One has to make a choice. Either you believe in unqualified university autonomy and condemn the students, or you agree that some societies can interfere and so "sympathise" with the students.

What is Dr. Birrell's position?

-Patrick Morgan,
(Department of English).

Pampered pavements

Dear Sir,

For several years the pavements of this University have been watered copiously. Thanks are due to the gardeners' judicious placement of scores of teeming sprinklers adjacent to our paths.

We are pleased to report that the paving stones have flourished and multiplied so much as to warrant less tender loving care from the gardeners. Melbourne's ever present rainfall and the delightful sunshine we have been enjoying are surely enough to ensure pavement growth at a rate sufficient to meet the needs of University expansion.

Before we are up to our necks in paving stones we suggest instead the water be directed to the lawns to help them combat the forthcoming insidious insurgence of pavements.

Robert J. Begg, I. J. Abbott,
(Zoology)

(*Mr. Troup, along with other A. A. Milne fans, correctly identified E. Orr as none other than Politics' own Max Teichmann.)

HOW MONASH HELPS THE PROFESSIONAL MIGRANT

By Dr ERIC W. BAUER, Director of Language Services



● Dr. BAUER monitors students' responses in the language laboratory.

One of the pressing tasks to facilitate integration of highly qualified migrants is the establishment of effective intensive English programs.

The talents of the tertiary trained migrant are, I believe, urgently needed by the Australian economy.

Australia has had a long and laudable record in developing language teaching programs, materials and methods for migrants.

But it is a comparatively new policy, adopted by the Departments of Immigration and of Education and Science, to provide intensive full-time courses for the highly qualified professional migrant who comes to this country.

With the recent establishment of the Integration Section of the Immigration Department, and the passing of an Act of Parliament which provides special funds for training and research conducted by educational institutions of all levels (including tertiary), it has become possible to obtain the services of personnel and facilities of the university.

A university can make a substantial contribution to the community in this field — it has the expertise and facilities and it has the long vacation when they can be used.

Monash decided in 1969 that it would offer to establish a course in English for the professional migrant. Language Services, which was created in 1969 as part of the Arts Faculty, began the first course in January last year.

In implementing the course the problems facing Language Services were manifold. Recruitment of well-trained and experienced teachers was probably the greatest, because of the sad lack of teacher training programs available in Australia for prospective teachers of English as a foreign language.

The deplorably low salaries of part-time teachers in this field

certainly does not act as a facilitating factor to attract candidates and to establish training programs.

In recent years, research in theoretical and applied linguistics, in psycho- and socio-linguistics, as well as in motivation, have radically altered language teaching. Most recently new insights gained by research in communication and educational technology have provided a host of data waiting for analysis and application in the field of teaching.

A considerable number of British, American and Continental-European universities have realised the urgent need to cope with this explosion of new knowledge by establishing special institutional facilities, such as language centres, foreign language education centres and special departments of English as a second language.

"Halfway solution sad"

Ironically enough, very little has been done in the universities of Australia, in a country where the need for development is even greater than in most of the other countries.

It would be sad if halfway solutions were sought in the form of unprofessionally conceived programs in teaching and research, and if outdated organisational frameworks were to impede or delay the realisation of new measures.

A great deal of leadership and research has evolved from Monash faculty members in the field of language teaching and linguistics in the past. The question is — will the university be enabled to use a farsighted and openminded policy to build on this excellent start or will it overlook the chance which other Australian universities perhaps did not have in the past.

In order to act effectively, it will be necessary to do some serious soul searching in establishing new priorities in the field of teaching and research in foreign languages with special consideration to English as a second language.

The national significance of university involvement is obvious for two reasons —

- Australia is recognised as the most important migrant-receiving nation by UNESCO, and thus has an obligation to utilise the best possible facilities and research data to justify the great expenditure of taxpayers' money.
- There is an ever-increasing need for Australia to co-operate with its Asian neighbours in exchanging academic personnel and students, as well as participating in co-operative

research projects. Asian students, teachers, and professionals are looking not only towards America and England but towards Australia for guidance and help, and in many cases this is not forthcoming.

The long-range objectives of activities such as intensive language programs conducted by Language Services exceed the immediate social significance of utilitarian values for the individuals concerned.

They include the collection of data in contrastive linguistic analysis, the development of guidelines for specific problems in language pedagogy, the collection of data in cross-cultural studies of a social-psychological nature, the development of special "modules" of teaching materials and test series, as well as in-service training of prospective teachers in English as a second language.

In this way, much needed research data can be obtained for later retrieval and comparative analysis for the benefit of theoretical and applied research and for the improvement of teaching materials and methodologies. As in so many other instances, the university here can fulfill the function of utilising theoretical research data in practical work, while the utilisation of the results of such studies will, in turn, further the development of the theory.

New series planned

Following the preliminary analysis of the first Intensive English Language program conducted at Monash in 1970, it was possible to incorporate some insights and suggestions in the preparation of improved materials and new test series being developed by the Department of Education and Science. This year's course program will yield further results in evaluating specific language problems which are being analysed for a number of nationalities represented in the students attending the course.

Fifty-nine students of 19 nationalities attended the 1971 course. Most of them had diplomas and postgraduate degrees in their field of specialisation. Twenty-three professions were represented in the group, but only 15 per cent of the students had been able to work in their professional field in Australia or continue their previous studies.

All of them were seriously hindered through language difficulties. If these immigrants were not trained in an intensive language program but resorted to two or three sessions a week in an evening course they would not reach their goals for a long time, if at all.

The time our students had been in Australia varied from two weeks to four years. Most of them, however, were recent arrivals and it was the intention of the Department of Immigration to provide this training as quickly as possible to those who needed it.

Attempts have also been made to encourage or provide some language training in the native countries of the migrants, with the help of the respective governments. But for various reasons it is impossible to insist on such training as a requirement for the issue of a visa, particularly in the case of specialists, and of Asian students and professional personnel.

The American experience

In this connection it is interesting to note that American authorities have realised that much valuable talent was excluded from further studies because of a too rigid insistence on proficiency in English before admission to the U.S. was granted. The policy now is to offer to these people intensive language programs at an American university. Such programs are arranged shortly after their arrival and conducted with the help of international and national bodies.

In the Monash program the students are trained in the four skill-areas of listening comprehension, reading comprehension, speaking and writing and they are given comprehensive weekly progress tests.

The daily teaching-cycle provided for about three hours of review and small group-teaching of new material, two hours of practice in pronunciation, intonation and conversation, in the language laboratory and about two hours of practice in reading and writing with a certain amount of individualised supervised self-study activities. On weekends staff members organised various social activities for the group which promote cultural integration and motivation in learning.

The syllabus of the course is based on clear and detailed specifications of aims and objectives which include terminal behaviour criteria in the language skills and in cultural patterns.

Detailed descriptions and critical appraisals of the Monash English Program for Professional Migrants are published in the annual evaluation reports issued by Language Services. But it can be said that the results of the 1970 program and the preliminary results of this year's course were most rewarding and have fully justified the purpose and the goals of this new project at Monash.

FIRST PROFESSOR OF MARKETING

DR IRWIN GROSS, an American marketing expert, has been appointed to Monash University's first Chair of Marketing in the Faculty of Economics and Politics.

At present Associate Professor of Marketing at the University of Pennsylvania, Philadelphia, Dr. Gross, 36, has been appointed for a two-year term. He is expected to take up the post about the middle of this year.

FOOTBALL MAY NEVER BE THE SAME AGAIN

USING a wind tunnel, the Mechanical Engineering Department has worked out the best way to kick an Australian Rules football and what happens to the ball during flight.

One finding was that 45 degrees is NOT the best angle to kick a drop kick as is often taught in the football books.

This is because of high wind drag at this angle - the best angle is 39 degrees.

"Basically we have put in scientific language what footballers and their coaches have learnt by trial and error," Dr. Deane Blackman, senior lecturer in mechanical engineering, told the Reporter.

"We have the data to say what will happen when a ball is kicked in any particular way," he said.

Dr. Blackman said ideally to get the most accuracy and distance a football should be kicked on its point - but this was not easy to do.

The work began in 1969 with Hari Usnadi and was carried on last year by Peter Kerley. Both were final-year students at the time of doing the project.

The football was suspended in the wind tunnel at different angles to measure the effect of drag and the results were fed into the computer to simulate the flight.

Some of the findings, using 20 metres a second as the launch velocity, were:

- Rotation is the most important element of any kicking style if it is correctly executed.

- The drop kick is the most stable form although, having a maximum range of only 55 metres (about 60 yds), under the conditions established.

- The torpedo style, nose first, travelled 64 metres (about 70 yds), but was prone to drift due to sideway lift forces. A high rate of spin for the torpedo style is not desirable.

Malcolm MacMillan senior lecturer in psychology, originally asked Mechanical Engineering to determine how a football performed in flight.

He plans to use the data in further studies of the problems involved in learning to kick a football with greatest mechanical efficiency.

Monash rowers on top



By CHRIS DANE

A Monash oarsman

Monash Rowing Club is having its most successful year on record and with the season nearing completion has an unassailable position in the Senior Premiership.

The Club has won six senior eight events, thirteen senior fours and four senior pairs.

Recently five Monash oarsmen were named in the 10-member State squad to compete in the Kings Cup in Perth on April 23 and 24. (As a matter of interest two of the other five squad members are Monash students although they row for Yarra Yarra).

The picture above typifies the strain and effort needed by the team to get to the top. It is the Monash Senior Eight training on the Lower Yarra.

The team is: Bow, Jim Bourke; 2, Chris Darling; 3, David Bishop; 4, Chris Dane; 5, Lawrence Stokes; 6, Erik Vahl Meyer; 7, John McKeand; stroke, Kerry Jelbart and cox, Robert England. The team coach is Roger Moor who, of course, was on the bank when the photo was taken.

The State squad members are Bishop, Stokes, Vahl Meyer, McKeand and Jelbart. Darling and McKeand are second year Monash medical students, Bourke is an Arts graduate, Stokes is an engineering graduate and Dane is a law graduate.

Undoubtedly much of our success results

from the work of Jelbart and Bishop who are international class oarsmen and stand a good chance, I believe, of getting to Munich for the 1972 Olympic Games.

The club got into a bit of trouble in the races just after Christmas. In a senior eight heat against Melbourne University an MMBW launch strayed on to the course and collided with the Monash boat, smashing the bow section.

Borrowed boat

We borrowed a boat for the Albert Park Regatta and were in the lead with 400 metres to go when the rigging failed and there wasn't anything else to do but stop.

The Monash boat took two weeks to repair but once we got it back we had a string of successes at Colac, Ballarat and Henley. The highlight was a win in the State Championships at Ballarat against five other teams, including the Tasmanian State crew.

The club's last race for the season will be during the May vacation in Brisbane at the intervarsity championships.

NUFFIELD AWARDS

Applications are invited for an award in Natural Sciences and in the Humanities and Social Sciences for the 1972 Nuffield Foundation Commonwealth Travelling Fellowship.

The awards, tenable in the United Kingdom, each have a value of 2240 Pounds (sterling) per annum for a fellow accompanied by his wife and approximately 1760 Pounds (sterling) per annum in other cases.

Candidates must be Australian citizens preferably between the ages of 25 and 35 years (exceptionally up to the age of 40), and must be university graduates holding a Master's or Doctor's degree and with a year or more of teaching or research experience in a university or comparable institution.

The period of a fellowship will be 12 months, a minimum of 10 months must be spent in the UK on an approved program of research work and training at an approved centre.

Applications close on July 30 and forms may be obtained from Mr. N. H. Oliver, Secretary, the Nuffield Foundation Australian Advisory Committee, Chemistry Laboratory, Barry Building, University of Melbourne, Parkville, 3052.

DIARY OF EVENTS

APRIL

April 5: Lunchtime concert, Alexander Theatre, 1.10 p.m. Henry Wenig (cello), Margaret Schofield (piano), works by Debussy, Bartok and Chopin.

7: Second of six lectures on architecture organised by the Arts Faculty. The Vice-Chancellor, Dr J. A. L. Matheson, will talk at 1.10 p.m. in R.I. on "Aesthetics of Engineering Structures."

14: Arts Faculty lectures. E. Graeme Robertson, the author of several illustrated historical works on Australian architecture, on "Ornamental Cast Iron in Victorian Architecture," 1.10 p.m., R.I.

16: Department of German, film, "Abschied von Gestern," 1966, 92 minutes, Eng. sub-titles, cast—Alexandra Kluge, Gunther Mack. H.I., 8 p.m.

19: Concert, Alexander Theatre, 1.10 p.m. Piano recital by Leslie Howard. Debussy, Shostakovich, Bartok, Scriabin.

21: First distribution of oral sabin polio vaccine, Union, ground floor. Arts Faculty lectures, F. W. Ledger, Professor of Town Planning at Melbourne University, "Visual Aspects of Town Planning," 1.10 p.m., R.I.

22: Parents' Group, 11.30 a.m., luncheon and conducted tour of university, details—Mrs R. G. McCrossin, 1 Martin Court, 3142.

23: Department of German, film, "Hokuspokus" (Bundesfilmpreis 1966), 103 min., Eng. sub-titles, cast—Helmut Ruhmann, Liselotte Pulver. H.I., 8 p.m.

26: Display of brass rubbings by Mrs Alice Gruner, in Commercial Bank of Australia office, Union—until May 7. Concert, Alexander Theatre, 1.10 p.m. Ronald Woodcock (violin), 4 pieces Op. 7 — Webern; Sonata for Solo Violin — Bartok.

28: "A Capella" choir, with instruments, Religious Centre, 8.15 p.m. Aradelt and Bach Church Music, plus Renaissance and 18th Century instrumental pieces. Admission by program. Arts Faculty lectures, Harry Seidler, Sydney architect, "In the Main Stream of Modern Architecture: A personal interpretation," 1.10 p.m., R.I.

Between April 8-24 Dr Horst Blenck, a German writer, will read from his works and introduce his films. For precise times contact the German Department.

MAY

May 3: Lunchtime concert, Alexander Theatre, 1.10 p.m. Ronald Woodcock (violin), Fantasy Op. 47 — Schoenberg; Recitative and Arioso — Lutoslawski; 3 Miniatures — Penderecki; Irkanda I — Sculthorpe; Capriccio for Violin and tape — Badings.

5: Arts Faculty lectures, David Yencken, founder of Merchant Builders, "Architecture tomorrow: Changing Attitudes and Requirements," 1.10 p.m., R.I.

20: Forum, "Automation and Control Applications," sponsored by Department of Mechanical Engineering in association with Institution of Engineers, Australia and Institution of Mechanical Engineers, London, and Fluid Power Society. At Monash, details P. Drausfield, ext. 3511.

ANZAAS films now available

ANZAAS has advised Monash that it has a selection of 18 films available for showing during first and second term.

The films are obtainable from Mr. Patrick Matthew, Film Officer, Film Unit, University of New South Wales, P.O. Box 1, Kensington, NSW, 2033.

The following is a full list of the titles:

- BM/4 "Life Cycle of the Root-Know Nematode - Meloidogyne Javanica"
- BM/7 "The Preparation of the Brain"
- BM/8 "Morphodynamic Study of Nervous Tissue in Culture - Spinal Ganglia"
- BM/9 "Spermatozoon Dynamics and Agglutination"
- BM/12 "Development of Motion in Human Beings"
- BM/13 "The Generic Reproduction of Stephanopyxis turris"
- BM/16 "Man's Natural Barrier to the Environment"
- BM/17 "Sputum"
- BM/19A "The Biologist and the Boy"

- PC/2 "A New Look at the Sun"
- PC/4 "Growth of Refractory Single Crystals at High Temperature"
- EA/1 "Spot-welding of Welding Materials with Variable Melting Points"
- GG/1 "Radioisotope Analytical Techniques in Mineral Processing"
- GG/3 "Volcanicity in France"
- TS/1 "The Yabuduruwa of the Lower Roper"
- TS/2 "Camels and the Pitjantjara"
- TS/5 "Bing Bang Boom"
- SGL/7 "Consider Science"

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Copy deadline for the May issue will be April 19.

Letters and contributions from staff and students should be forwarded to the editor, Ian Anderson, c/ the Information Office, first floor, University Offices — phone 3087.