

Evidence of early life in Victoria:

RARE FIND IN RIVER GORGE

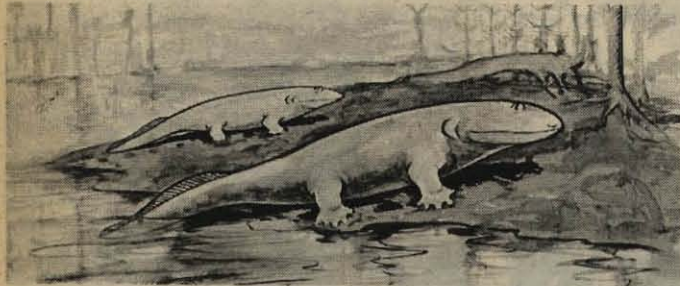


MONASH REPORTER

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Artist: Celia Rosser

In 350,000,000 BC (or thereabouts), animals rather like these crept out of the primeval ooze . . .



They left tracks like these in the mud. The mud hardened into rock that lay undisturbed for aeons, until . . .



Roughly 350,001,972 years later (after Man had left his own footprints on the Moon), 20th century technology whirled in, plucked the evidence of those faltering footsteps from their ancient resting place . . .

And so opened another chapter in Mankind's continuing search for knowledge about the beginnings of life.

The world's oldest known footprints have been found in a remote gorge in Eastern Victoria.

They were made 350 million years ago by the earliest recorded land vertebrates (backboned animals) and lay embedded in sandstone rock beside the Genoa River until floods uncovered them early in 1971.

Last month they were plucked by helicopter from their resting place and delivered to the National Museum in Melbourne.

A biologist, Mr Norman Wakefield, of Monash Teachers' College, found the footprints in September, 1971. He notified Professor Jim Warren, of Monash University's department of zoology, and they identified them as having been made by amphibians of the Upper Devonian Age.

Professor Warren says the animals were probably very similar to the genus *Ichthyostega*, which was an animal intermediate between fish and amphibians and has been found previously only in Greenland. (This lends support to the theory that at that time the continents were joined in one large land mass).

Three sets of tracks were found at the Genoa River site, and it's believed they were made by animals ranging in

length from about 55cm (21½in.) to 90cm (nearly 3 ft.).

As shown in the artist's reconstruction above, they were stout of build, had broad blunt heads, thick tails about the same length as their trunks, and four feet, each with at least three but possibly four or five toes.

Mr Wakefield found the trackways during a botanical excursion in September, 1971 (see story, page 2).

In October, a team from the Monash zoology department accompanied him to the site to confirm the findings and begin preliminary examinations of the trackways.

Further on-site investigations followed, and early this year it was decided to remove the trackways to Melbourne for more intensive study.

There were problems, however. The prints were impressed in large slabs of rock, one weighing about 1300lb., and the others about 900 lb. each.

The site, too, was inaccessible. It could be reached only after a seven- or eight-hour footslog from the nearest road, and this virtually precluded the removal of the specimens by land.

The most likely solution was an airlift — and here, Esso-BHP, who were using helicopters for their off-shore drilling operations in Bass Strait, came to the rescue.

By arrangement with the helicopter firm, Airfast Services, a small helicopter took off on July 3 for a reconnaissance of the area. On board were the pilot, John Ross, Mr Frank Bradley, area director of Esso-BHP, Professor Warren and Norman Wakefield.

This trip established that an airlift was indeed a feasible method of removing the rocks.

So, on Friday, July 7, a larger party returned by road to the district. It consisted of Professor Warren, Jim Guthrie, Ken Simpson, Larry Marshall and Peter Crabbe (all of Monash zoology department), Norman Wakefield and Michael Farrelly, of Monash Teachers' College, Ron Watkins, of Esso-BHP, and Alan Arnold, photographer.

• Continued on page 2

OPEN DAY SPECIAL

Few people today would speak of a modern university as an "ivory tower". (Ivory tower, according to the dictionary, being "a place of lofty seclusion".)

There's certainly nothing secluded about Monash where, in principle, any citizen may come to see us at any time, though in practice we prefer to invite him when we are geared to receive him, and show him as many of our wonders as we can.

The prime occasion for that, of course, is Open Day—Saturday, August 12, this year.

On that day, our visitors will be treated to a rich collection of marvels—from the "footprints in the primeval mud", reported on this page, to the "fingerprints" of life-forming substances in limitless space.

The mystery of the "fingerprints in space" will be explained in the Chemistry labs., while the foot-

prints will be seen with the naked eye in the Zoology labs.

But that is not all: most of the departments will be open, with experts to satisfy any inquiring mind—even schoolboys and girls, who have the uncanny knack of asking the difficult questions.

And not only in the labs and lecture theatres will there be entertainment and enlightenment: there'll be literary and cultural riches in the Alexander Theatre, Robert Blackwood Hall, the Religious Centre, the libraries and the Union, with a fascinating array of student activities.

A word of caution against disappointment: the visitor can't hope to see the lot — he will suffer from a surfeit of excitement.

And you don't get that in an ivory tower!

For a full round-up of the day's attractions, turn now to page 5.



Continued from page 1

After an overnight camp at South Nungatta, the party trekked into the gorge on Saturday, July 8.

For the next two days, the team lugged and hauled the rocks from their 350 million-year-old resting place to a sandbank 200 yards away — the most suitable spot for the helicopter pick-up.

The two smaller blocks were carried to the sandbank by means of rope slings. The large one was shifted laboriously along a series of stages made by laying large poles parallel across the uneven ground beside the river.

At 11 a.m. on July 11, a larger helicopter dropped into the gorge. The rocks, now in cargo nets, were slung under the machine and, one by one, carried out over the mountain range to a paddock at South Nungatta. Each outward flight took just five minutes.

Then, after two more trips to bring out the work party, the helicopter gently loaded the rocks on to a waiting truck for the final 340-mile journey to Melbourne.

The main specimen is now in the care of the National Museum, Russell St. There it will be on public display for several weeks before being returned to the laboratories for further study, which should yield new information on the invasion of the land by aquatic vertebrates and the evolution of tetrapod locomotion. (Tetrapod: Vertebrates using limbs for bodily support rather than for swimming—as, for example fish fins).

Other specimens will form part of a palaeontology display which will be featured in the Monash department of zoology during the university's Open Day on Saturday, August 12.

FOOTNOTE: Previously, the earliest recorded fossil evidence of land vertebrates in the Southern Hemisphere was from Australian, South American and South African rocks of Permian age—a mere 230 million years old!

Background to the Genoa River find

By
NORMAN WAKEFIELD
Monash Teachers College

Last September's excursion to the upper Genoa River was really a botanical one, its purpose being to add further to the list of plant species known to grow on the sandstone formation there.

On a map, the sandstone area is roughly oval in shape, mostly in New South Wales, and at its northern end is the Nungatta Mountain, rising to 3018 ft. In Victoria, the highest point is a range a little over 2600 ft. high, just across the border. Further south again, the Genoa River zig-zags for some nine miles through a maze of cliffs and gorges.

From 1947 to about 1950, I had explored various parts of the sandstones, sometimes going in on foot and sometimes on horseback, either westerly from a settler's house at South Nungatta or south-easterly from Rockton.

Evidently the area had not been looked into before by a botanist, for it yielded quite a number of plant species not previously recorded for Victoria, and some new to science.

On this occasion, three of us set out on foot from the settler's house—now deserted—and by the end of the day had crossed the 2600 ft. range and descended to the Genoa River. My companions were Messrs. Keith Rogers, a 75-year-old grazier of Wulgamerang in Gippsland, and Russell Bathard, a science student of Monash Teachers' College.

First sighting

It was quite early next day—September 25, 1971—that we discovered the trackways. It was while negotiating a rocky part of the river bank that I saw the first footprints, some yards ahead, and Russell noticed the second trail while I was busy examining the first.

The two trackways were side by side on a slab of fine-grained sandstone about 7 square feet in area. The first was a series of almost 40 prints, some with toe marks, and the second was an undulating belly mark with rather shapeless foot-marks each side.

We spent two hours measuring, sketching and photographing the tracks, then set out again for South Nungatta. The unscheduled delay at the trackways resulted in darkness overtaking us before we were out of the sandstone. We had to climb down one cliff by torchlight, then set a compass course across country, and it was 10 o'clock before we arrived back at the old house.

I knew that those sandstones were shown



MUSCLE-POWER was needed at this stage of the operation. Moving the heavy slabs of rock from their resting place to the makeshift helicopter pad 200 yards away took the work party about a day and a half.

on geological maps as Devonian, but checked this, when back in Melbourne, with Dr. John Douglas, a geologist with the Victorian Mines Department. He cautiously stated that the sediments were considered to be Upper Devonian.

It was appropriate that the matter should be discussed next with Professor Warren of the Monash Zoology Department, for he had been my supervisor during some postgraduate palaeontological work. His reaction to my initial mention of Upper Devonian footprints was one of considerable scepticism, for no tetrapod trackways were known anywhere from as far back as the Devonian. In fact, the world's oldest fossils of limbed vertebrates were of Upper Devonian age.

The photographs and sketches of the Genoa River trackways dispelled the doubts, and a second expedition was organised. The group comprised eleven people from Monash Teachers' College, the Monash

University Zoology Department and the Mines Department.

This time, to avoid climbing over the range, the party went in by way of Yambulla Creek, which runs westerly from South Nungatta to the Genoa River. On reaching the river, we had a three-mile trek downstream to reach the trackway site.

The geologists found two shale beds containing plant fossils, located about half a mile from the trackways and some 50 ft. higher stratigraphically. The plant remains were sufficient to confirm that the sandstones were of Upper Devonian age.

A third trackway was uncovered when I shifted a large block of rock which lay on the same bedding plane as the original tracks and a few yards beyond them. There was a definite series of imprints but none had preserved any recognisable foot shape.

A month later I took a third excursion to the trackways. There was Dr. Douglas and three others from the Mines Department and two from Monash Teachers' College. This time we went south-westerly from the old house and skirted the easterly edge of the sandstone formation. We descended to the river by way of a creek valley in which there were tracks of warm-temperate rain-forest with huge lianas, tiny epiphytic orchids, and voracious leeches!

We traversed a large area of Devonian granodiorite where the local geological maps showed Ordovician sediments, camped the night near the river, then travelled upstream and reached the trackway site by the next evening.

Detailed tracings were made of each of the three trackways.

The two original trackways were on the surface of a block of rock estimated to weigh 1300 pounds—over half a ton—and the other trackway involved two blocks each almost as heavy as the first.

The earliest known tetrapod fossils are from Upper Devonian sandstones in Greenland. The best-known, *Ichthyostega*, was about three feet long with blunt head and short tail. The Genoa River trackways were evidently made by very similar animals.

As far as can be estimated, the Genoa River footprints date back between 350 and 360 million years. They are by far the oldest known evidence of land vertebrates in the southern hemisphere, and they are of the same age as the Greenland fossils.



LEFT: The final stages as the helicopter gently lowers the priceless relics on to a University truck for transport to Melbourne. **ABOVE:** Back at Monash, Professor Warren and Mr. Norman Wakefield discuss the operation with the aid of a map of the area.

ACADEMICS AND MPs DEBATE PLANNED U.S. NAVIGATION STATION

The proposed US navigation station, Omega, came under strong attack from three academics at a recent forum at Monash.

The general argument was that the station would not fulfil Australia's navigational needs, that it could easily disrupt some home communications such as transistors and telephones and that it could be a potential nuclear target.

The forum, which was organised by the student ecology group, ERIC (Environmental Research Information Centre), was held on July 26 and was attended by about 250 people, including both Government and ALP parliamentarians.

It also attracted the ABC and was video-taped for showing that night on "This Day Tonight."

After the three main speakers, the station had one defender—the Government whip in the House of Representatives—Mr. E. M. C. Fox.

He suggested that any use in war was not the point at issue because this was outweighed by its peacetime value. He also refuted suggestions of Government secrecy.

World-wide link

The forum began with an outline, by Dr. D.R. Hutton, senior lecturer in science at Monash, of how the system worked. Omega, he said, would be part of a world-wide communication system - it would link with stations in Hawaii, North-east United States, Norway and Trinidad and proposed stations in Japan, South America and East Africa.

Sites for the Omega installation are currently being considered. The most likely area is one of the following: Darling Downs in Queensland, the Riverina District of NSW, the north-central area of NSW, or the central part of the Murray Valley.

Dr. Hutton's main argument against the system was that it would have a "dead" range of 1200 miles across and thus would not be effective for navigation in the south-east area of Australia where the navigation needs were most acute.

He believed cheaper navigation aids would be of more value.

Radio interference

The second speaker was Gordon Troup, reader in physics at Monash, who claimed that people living within an 18 mile radius of the Omega transmitter would suffer interference in their telephone, transistors and hi-fi sets. Television would not be affected because the set was well shielded.

The defence possibilities of the installation were criticised by Dr. Robert Cooksey, a lecturer in political science at the Australian National University, Canberra. It was Dr. Cooksey's remarks which drew a sharp response from Mr. Fox.

Tourist potential

Dr. Cooksey started by claiming that a June 25, 1972, press release by the Minister for Shipping and Transport, Mr. Nixon had talked about the tourist attraction potential of the Omega station; but according to Cooksey, the military implications had not been raised.

"Country Party members in wheat and wool seats are pitching the line that this is a way out of the wool crisis," Dr. Cooksey said. He claimed there was a lack of rural understanding about what Omega represented.

He also suggested the Government had created a false impression that Australia would control the installation. It was true, he said, that Australian technicians would man Omega, but they could not interfere with the master signals from the main Hawaiian base.

The idea of total, all-out nuclear war was no longer relevant - today's strategy involved limited response where a war could last for weeks, months or longer. Such a war, according to Dr. Cooksey, would not be fought over continental United States or European Russia but over places like Siberia and Australia where key installations could be located.

Other purposes

In reply Mr. Fox produced a statement which he said was made by Mr. Nixon in May 1971, and this indicated that the Omega station could be used for military purposes. Thus the Government had not been secretive. Further, its other purposes, especially for navigation, were far more important.

He suggested that a satellite could be used in wartime but this did not stop it being used to beam television pictures of overseas events or to provide weather data.

Mr. Fox said Dr. Cooksey's remarks would be valid if Omega was to be used as part of a defence system, but it was neither defensive nor offensive.

Places in Halls of Residence

With Roberts Hall opening fully at the beginning of this year the total number of student rooms in Halls is now nearly 700—33% greater than the beginning of 1971.

There has also been an increase in the number of students who came into residence for less than a full year. The number of vacancies has fluctuated, during the year, between zero and about 4% of the total capacity.

At the moment there are a number of places for both men and women, available for immediate occupancy. Applications are invited from all students—whether they be full-time, part-time, undergraduate or post-graduate—and also from single members of staff.

Many students, who have not previously considered the possibility, may welcome the opportunity of having a room conveniently located on the campus, with meals and cleaning provided, while they concentrate on their studies in the second part of this semester.

There is a strong probability that Richardson Hall will be able to accept a limited number of undergraduate and post-graduate residents after the mid-Semester break.

All enquiries should be made to Mrs. V. Ellis at the Halls Admission Office, located in Roberts Hall. The internal telephone extensions are 3280/1/2/3.

PACIFIC ART ON DISPLAY

A unique exhibition of Art of the Western Pacific will open in Robert Blackwood Hall tomorrow (Wednesday) and remain on view until Open Day.

Many of the 70 items on display have never been seen by the general public.

They are on loan from the National Museum of Victoria and represent the art of the natives of the Solomon Islands, Admiralty Islands, New Zealand, Savage Islands, New Guinea, Fiji, Gilbert Islands and Australia.

The exhibits include works of art, artifacts, tools, weapons and curios.

Among the rarest are some Kulau chalk figures from New Ireland. These are carved after the death of a tribal member, then generally destroyed after the burial, so that very few survive.

"Students lack ability in English expression"

— Professor Swan

The Pro-Vice-Chancellor, Professor J. M. Swan, has outlined work being done in the University to improve the basic written expression of undergraduate students.

Professor Swan made his comments when he opened a conference in the Alexander Theatre on "Curriculum Development in the 1970s".

The conference was organised by the Joint Council of Subject Associations of Victoria, a federation of eight subject associations who are supported by more than 5000 teachers.

Prof. Swan's basic theme was that it was all very well to have extensive curriculum reform in secondary schools but a few basic criteria had to be retained—including the ability to express oneself adequately.

Remedial courses

He told the 340 delegates that the Monash engineering faculty had appointed a specialist in linguistics and the English language to give a remedial course in basic English Expression to a group of 15-20 engineering students.

Their facility in English writing and speaking was so poor as to threaten their progress in higher years of the course, Prof. Swan said.

The problem was by no means confined to engineers, but affected all faculties, he said.

Prof. Swan said the Faculty of Medicine had recently been looking at the matriculation performance of its students in relation to their subsequent performance in the medical course.

"These students, because of the special aura attached to medical practice in Australia, are highly gifted and have very high matriculation scores, especially in subjects like mathematics, chemistry and physics.

"Over the past six years only six per cent of the intake has had compensatory passes in English Expression. Yet 30 per cent of those seen at meetings of the Monash Unsatisfactory Progress Committee have come from this group."

Prof. Swan said the economics and politics faculty was hoping shortly to mount a research project on the teaching of basic skills of communication in the English language.



● Professor Swan . . . unhappy with student English.

Plan to stimulate student writing

The Monash English Department is to give students personal contact with established writers in an effort to stimulate more creative writing.

Bruce Dawe will become the university's first poet-in-residence for one week from September 4.

The head of the department, Professor David Bradley, said he hoped to have a succession of leading writers visit the campus for extended periods.

Professor Bradley said it was intended that the writers should not only lecture but conduct workshops and devote much of their time talking informally with students.

"Universities are now among the few possible remaining patrons of literature and the arts and, if one is to make the best use of the small amount of support one can offer painters and writers, the desirable thing is to invite them to work on campus," he said.

Professor Bradley said recent poetry readings had produced some fine work, some of which he considered was publishable.

MONASH IN THE BEGINNING

“IT GAVE ON TO A PLEASANT VIEW . . .”

In 1958 the Interim Council of Monash University sought a site of not less than 150 acres, preferably 250 acres.

Three sites fell into the short list: a) Metropolitan and Huntingdale Golf Courses, b) the Talbot colony for epileptics at Clayton, c) an area south of Centre Road fronting Clarinda Road. For a time, Caulfield Race Course came in and out of the list.

A study of the maps and travelling times and the density of suburban students at Melbourne University had already shown (at 1958) that the site of Victoria's (in effect Melbourne's) second University should be in the South-eastern suburbs.

For one reason or another (after all, you can't take over a public park even if it is used for a private golf club), the Talbot site was chosen. Besides enjoying a number of technical advantages (a level plateau, good foundations, relatively easy to drain towards the east), nearly 290 acres were available; and, as everyone said at the time, and still says, 'it gave on to a pleasant view of the Dandenong Ranges.'

The story goes that when the appointed planners (Bates, Smart and McCutcheon) first met the Interim Council or its buildings committee, three simple questions were asked and answered: 1) How many students? 10,000. 2) How many staff? 1,000. 3) What with limited public transport, most would come by car, yes? Yes.

Very well, we will provide first for about 4000 cars. Now, what do you want in the way of lecture rooms and laboratories?

Master plan

So a master plan was drawn up, under which the first laboratories and class rooms for science, mathematics and engineering were designed and started.

The Buildings Committee in the early days was in fact the executive committee of the Interim Council. So, when the committee said we must have buildings for science or for engineering, they were virtually deciding to have faculties of science and engineering.

Nevertheless, the ultimate objective was a multi-faculty university, including clinical medicine and a hospital on the campus.

Right from the start, it was laid down that between and among the buildings the campus was to be for contemplative pedestrians, not for vehicles. So we have ring roads, but, you will notice, no through roads.

Tunnel network

As a substitute for internal roads, we have a network of tunnels under our feet to convey the piped and wired services, and, between some buildings, goods and services.

The Buildings Committee, which celebrated its 200th meeting only a week or two ago, is described as having fired more architects in the space of 10 years than any other committee of like size, or spending as much money—of the order of \$60 millions.

Though, from the beginning, Bates, Smart and McCutcheon were to be the planners and though they were commissioned to design the first set of buildings from 1959 to 61 (for science, mathematics, engineering and medicine), it

was decided to assign selected architects to different buildings.

The fear that this might lead to the wildest excesses of architectural expressionism was of course tempered by the limits of materials and styles and finance laid down by the Buildings Committee.

Years ahead

The curious thing was that the work went so well in the early stages (including selecting and buying the site, and putting up the first buildings), that the University opened for classes in March 1961, several years ahead of expectations, and that all faculties were housed and at work by 1966, instead of the expected 1970 or later.

In fact, by 1970, the main complex, including the Religious Centre, the Alexander Theatre, and Robert Blackwood Hall, was complete in its first essentials.

But other stages and developments towards full size and capacity are to come; the next two or three years could be among the busiest in our building program: extensions to engineering, physics, and chemistry are already under way, while new projects are about to start on extensions to the Menzies Building, to several of the science buildings, to education, and in the sports areas.

It is true that the clinical work in Medicine has been spread among several metropolitan hospitals—particularly Alfred and Prince Henry's.

Teaching hospital

Only in the last few weeks has a decision made as far back as 1958 been given token political approval that could lead to a teaching hospital of a few hundred beds, on the campus, during the next few years.

As it turned out, we put ourselves into the hands of relatively few architects. By any standards, the visitor we hope will agree that the result is function, convenience and harmony with sufficient variety to be interesting.

LEARN TO TYPE

The second semester union typing course commences on Monday, August 28. It is open to all Monash students and staff.

Classes for the seven-week course are held on Monday evenings and Wednesday afternoons. The fee is \$15.

People can enrol at the clubs & societies office, first floor, Union, 9.00 a.m. to 2.30 p.m. daily.

Olympic rower

William Ballieu, 21, a part-time student in 2nd. year economics, has been selected in the Australian rowing eight for the Munich Olympic Games.

The other current Monash student in the Australian Olympic team is Ian Watson, a diploma of education student who is in the basketball team.

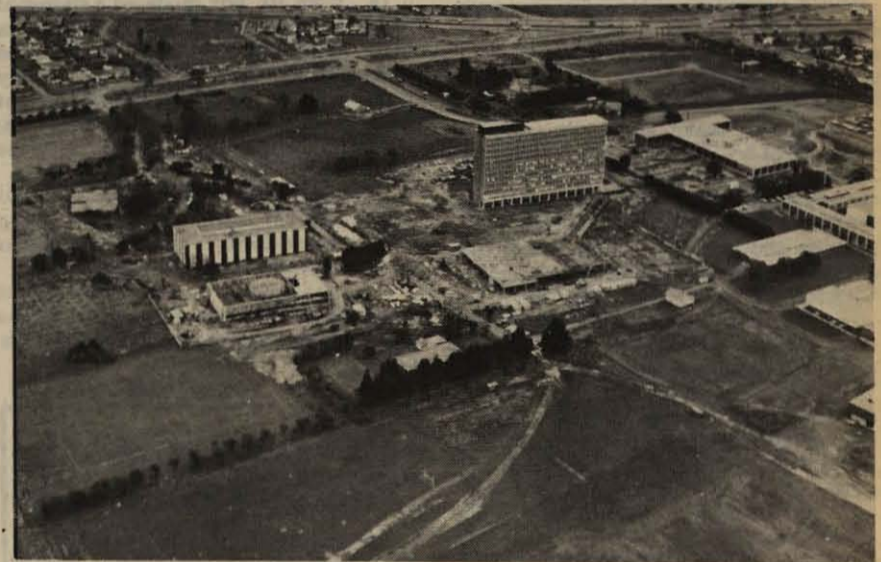
November 1961

JUST eleven years ago when the photograph below was taken, Monash University was literally a hole in the ground. The future campus was dominated by cranes, graders, scaffolding, mud, timber, steel girders and the occasional finished building. Pictured below are the beginnings of the Monash engineering complex.



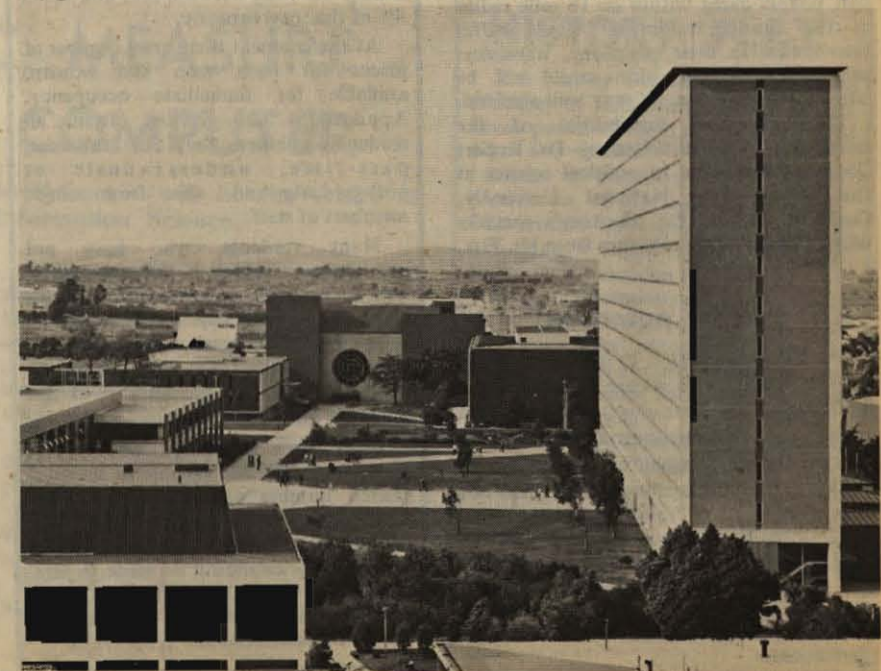
January 1964

BY 1964 Monash had a total student enrolment of 2923. As the picture below illustrates there was still plenty of Monash mud about . . . however the Menzies Building was half finished (centre of photo), the library (left), and the medical and science blocks (right) were all well developed, and the University Offices and Union (foreground) still had plenty of scaffolding. This aerial photograph was taken looking south towards Dandenong Road.



August 1972

TODAY the population of Monash has grown to more than 13,500 staff and students — a community equal in size to Mildura. The rate of expansion of Monash, from its beginnings with an Act of Parliament on April 15, 1958 has rarely been matched anywhere in the world. The photograph below was taken looking east across the Forum from the science building.



AND TODAY — OPEN DAY, 1972



ABOVE: The wind tunnel in Mechanical Engineering, showing Dr. W. H. Melbourne at a model of a set of Melbourne city buildings. The model is on a turntable that can be set in any direction to the wind.

Robert Thompson, standing, suggests the size of the tunnel — 3 metres high.

High speed air, generated by a fan in another part of the tunnel, comes through the vertical grid at the far end and over the array of blocks on the floor, so as to generate a representative wind.

In operation, the structural effect of the wind on the buildings can be measured as forces on the turntable. By injecting smoke into the air stream, the turbulence of the wind round the buildings can be seen through the observation windows on the left. The tunnel is in building no. 31 on the page 7 map. Photo: The Sun.

WELCOME TO MONASH UNIVERSITY'S FIFTH OPEN DAY . . . In these pages, Monash Reporter attempts to show just a few of the things you'll see as you move around the University. The full guide appears on pages 6 - 7. On page 8 is a breakdown by time of events as they will occur during the day.

A BIG WIND—BUT NO NOISE

What would a world free of echo be like?

Open Day visitors will be able to find out by visiting the Mechanical Engineering Department's new anechoic chamber.

Anechoic simply means without echo. However, the equipment, materials and expertise needed to construct such a state are not so simple.

The chamber is in building 5 (31 on map). Its walls are made of concrete a foot thick and it sits on 84 large springs, completely isolating it from any vibration passing through the building.

The walls, floor and ceiling of the chamber are lined with huge wedges of rockwool insulating material which absorb sound, eliminating reflection or echo.

Noise pollution

Staff and students use the chamber to measure the acoustic behaviour of noise sources in an attempt to understand among other things, the causes of noise pollution.

Another piece of equipment which became operational only recently is the huge (4.5m x 3m. x 30m.) wind tunnel used for study in the field of fluid mechanics.

The tunnel can produce air speeds of up to 250 m.p.h. and a major part of its work involves the investigation of the effect of wind on tall city buildings.

Scale models of buildings are placed in the structure and with the aid of a representative boundary layer, engineers are able to subject them to simulated natural winds.

Patterns of airflow are then made visible by the injection of streams of dense smoke.

A number of other displays have been organised. Associate Professor Arthur Williams, who is co-ordinating the displays, said the department's most sophisticated equipment would be used to show visitors how aircraft noise is studied.

With the widespread concern over pollution the "torpedo" should arouse interest.

The "torpedo" is used to investigate turbulence and currents in Westernport Bay. It is hoped this work will enable researchers to discover ways of avoiding permanent damage to the Bay by pollution.

The Bofors gun, used by production science researchers to study machining processes at very high speed cutting rates (to 8000 ft/sec.), will also be displayed.

A special projectile is used to carry a work piece past the cutting tool. The process is photographed on a very high speed camera and the forces are measured on a dynamometer.

ENGINEERS EXPLAIN BRIDGE COLLAPSE

The West Gate Bridge disaster lives vividly in the memory of many Victorians.

Media coverage told the story in human terms—35 dead and many maimed—but there are many people who still don't know just what happened.

To explain the disaster, the Department of Civil Engineering has set up a display in the central corridor of engineering building 5 (31 on map). It graphically portrays the sequence of events which led to the collapse of the huge span.

The story is conveyed by line diagrams, extracts from formal drawings, models of the span as it was, full-size pieces of the bridge, revealing photographs and examples of calculations made during the investigation.

PLAY MUSIC, MEASURE WEIGHT BY COMPUTER

A new computer — with two novel uses — will be the centre of the display by the Department of Information Science.

Lecturer, Mr. David Boulton, who is arranging the display, said the department's new Hewlett Packard 2100A computer would be operated alternately as a "speak-your-weight-machine" and a "music player."

Visitors who bring their own music will be able to punch out the score in a notation approximating the way music is written. The computer will be programmed to locate the right frequency and output to a speaker.

Mr. Boulton said Monash students were working on projects using music and speech as part of their normal courses.

The computer will also be converted to a "speak-your-weight-machine."

A vocabulary—stones, pounds and numbers—will be stamped on a magnetic tape or disc. The candidate will stand on a set of scales and the weight will be digitised.

The HP2100A will convert the information to stones and pounds and the result will be played back through a speaker.

Mr. Boulton said it was hard to demonstrate the department's work to the public.

"They don't want to see sheets of figures. We decided it would have to be something novel to get them interested."

He said a number of students were working on projects synthesising speech.

The Information Science Department is on the second floor, western end of the Mathematics building (32 on map).

HISTORY PLAY

The History Department will unfold the story of Melbourne's early historical development in verse, song and prose for Open Day visitors.

The department's dramatic production, "From Batman to Chloe," will feature professional actors Julia Blake and Norman Kaye and Australian History lecturer, John Rickard.

Using contemporary diaries, letters, court cases, songs, poems and local melodrama, the production traces the history of 19th century Melbourne from the arrival of John Batman to the death of Queen Victoria.

Julia Blake has been appearing in the stage show "Butley" with Peter Wyngarde and she has been seen in the ABC's serial "Bellbird."

Norman Kaye, an actor and musician, recently played in "Caesar and Cleopatra" at St. Martin's Theatre.

"From Batman to Chloe" will be on in the Union Theatre from 3 to 4.15 p.m.



- 1 SPORTS BUILDINGS
- 2 ROBERT BLACKWOOD HALL
- 3 UNIVERSITY OFFICES
Vice-Chancellor, Academic Registrar,
Comptroller, Students Records
- 4 MAIN LIBRARY
- 5 EDUCATION
- 6 ALEXANDER THEATRE
- 7 ROTUNDA
- 8 RELIGIOUS CENTRE
- 9 UNION
Warden, Sports and Recreation
Association, Monash Association
of Students, Clubs and Societies,
Student Newspaper, Bookshop,
Careers and Appointments Office,
Post Office
- 10 HUMANITIES
Faculties of Arts, Economics and Politics
- 11 LAW
- 12 MEDICINE
Anatomy, Bio-chemistry, Health Service,
Genetics, Physiology

- 13 BIO-MEDICAL LIBRARY
- 14 CENTRAL SCIENCE BLOCK
Offices of Physics and Chemistry
- 15 BIO-CHEMISTRY
Undergraduate Laboratories
- 16 BIOLOGY
Psychology and Botany
- 17 SENIOR ZOOLOGY
- 18 FIRST YEAR BIOLOGY LABORATORY
- 19 ZOOLOGY LECTURE THEATRES
- 20 SENIOR CHEMISTRY
- 21 WESTERN SCIENCE LECTURE THEATRES
- 22 SENIOR PHYSICS
- 23 FIRST YEAR CHEMISTRY
- 24 EASTERN SCIENCE LECTURE THEATRES
- 25 FIRST YEAR PHYSICS
- 26 HARGRAVE LIBRARY
- 27 ENGINEERING BUILDING 3
Materials Engineering
- 28 ENGINEERING BUILDINGS 1 and 2
Engineering Staff Offices
and Drawing Office

- 29 ENGINEERING LECTURE THEATRES
- 30 ENGINEERING BUILDING 4
Electrical Engineering
- 31 ENGINEERING BUILDING 5
Civil, Chemical, Mechanical and
Materials Engineering Laboratories
- 32 MATHEMATICS
Mathematics, Computer Centre
and Information Science
- 33 BOILERHOUSE
- 34 MAINTENANCE BUILDING AND
CENTRAL STORE
- 35 ANIMAL HOUSE
- 36 RICHARDSON HALL
- 37 ROBERTS HALL
- 38 FARRER HALL
- 39 HOWITT HALL
- 40 CENTRAL BUILDING
- 41 DEAKIN HALL

MICROBIOLOGY

The theme of the display in room AG03, Medicine (12), will be: "The environmental, medical and industrial aspects of the interrelationships between microbes and man".

MUSIC

A performance by the Indonesian gamelan orchestra will be given by students in the Alexander Theatre from 11 a.m. to 12 noon.

PHYSICS:

Demonstration of 1st year teaching equipment, ground floor, 1st years Physics Building (25): Microwave Apparatus, Diffraction Experiments, Torsional Apparatus, Optical Experiments, Stroboscopes, Do-it-yourself experiments.

2nd year teaching equipment, same location as above: Velocity of Sound Apparatus, Geiger Counters, Determination e/m using Magnetron effect, Scintillation Counters, Cloud Chamber, Do-it-yourself experiments.

3rd year teaching equipment in the 3rd year laboratory, Central Science Building (14), ground floor: Cosmic Ray Telescope, Nuclear Magnetic Resonance, Low Field Electron Spin Resonance, Bitler Patterns, Modulated Laser, Student Projects.

Workshop Equipment in the laboratory workshops, Senior Physics Building (22), ground floor: Machine Tools, Spark Discharge Machinery, Leak Detector Apparatus.

Laser application in research projects in the Laser Laboratory, Senior Physics building, ground floor.

Research Equipment in Senior Physics building, ground floor: Dilution Refrigerator, Computer, J.E.O.L. Electron Microscope, Temperature Measurement, Cryostats and Low Temperature Experiments.

Metrication and Measurement: A series of displays and films illustrating the impact of metric conversion on our everyday life, and the history of measurement and units will be held in the 1st year physics lab. No. 1-2 and Lecture Theatres S1 and S3, all day.

PHYSIOLOGY

Medicine Building (12). A continuous display of working exhibits will be held in the multi-discipline laboratory east, ground floor. The 2 1/2 hour screenings of the film "The Mind of

Man" will be held at 10.30 a.m. and 2.30 p.m. in lecture theatre M3 in conjunction with the Department of Philosophy. Each session will have three intervals.

PSYCHOLOGY

Displays on floors 3, 4 and 5, biology building (16), will show experimental work carried out in the areas of learning, perception, human factors and linguistics.

Tea and coffee will be available between 2 and 5 p.m. in the 3rd floor staffroom.

RELIGIOUS CENTRE

There are two chapels in the Centre (8), with stained glass windows by Les Kossatz and Leonard French. The building is used by staff and students of all denominations.

A program of Tudor music by the Monash Chapel Singers under conductor Gerry Almond will be presented in the large chapel from 1 to 2 p.m., and again from 3 to 4 p.m.

RUSSIAN

Humanities building (10). Consultation on courses offered by this department will be held all day in the Russian office, room 311.

Half hour films on Russia will be screened at 11.30 a.m., 12.30 p.m., and 3.30 p.m. in language lab. 1, third floor.

There will be displays of books and medieval chronicles; prints of icons and Russian church architecture; literary type-faces and Soviet film; plates of folklore, and a special linguistics display (Russian among other Indo-European languages).

SPANISH

Books and artifacts will be on display in room 111, first floor, Humanities building (10).

Three films — "Brazil, Portrait of a Country"; "South America", and "Spain" — will be shown in lecture theatre R2 from 11 a.m. to 12 noon, 2 to 3 p.m., and 4 to 5 p.m.

ZOOLOGY

Open all day (17). There will be displays on the following: Analysis of sounds used by birds and marsupial rats; Palaeontology display — fossil fish and footprints; Structural adaptations of sea birds; Ants — trailing behavior of the argentine ant, digging behavior of meat ants; Crustacea of temporary pools; Equipment used in limnological research; Marine plankton —

insects of fresh water streams; Pollution; The European carp as a pest in Australian streams; Areas worthy of preservation — Lower Glenelg and the Little Desert, Biological Society; Information Bureau — Biological Society.

SPORTING EVENTS

Football: Monash Blues v. Ormond, main oval, 2.15 p.m.

Soccer: Monash v Clayton, soccer ground.

Rugby: Monash 2 v. Powerhouse 1.30 p.m., Monash 1 v. Powerhouse, 3 p.m.

Karate: An exhibition in either the Forum or the gymnasium, depending on weather.

Archery: A demonstration on the croquet field (high jump area), 2 p.m.

A parachute drop will be made, weather permitting. Time and location will also depend on weather.



● DURING the past few months students in the Music Department have been learning how to play the percussion-type instruments of a gamelan — an Indonesian orchestra.

The teacher has been Mr. Poedijono from Bali. He is pictured above with Dr. Margaret Kartomi, lecturer in music. The gamelan will be played on Open Day from 11 a.m. to 12 noon, Alexander Theatre. Photo: The Age.

OPEN DAY – Hour by hour

Check the time for these:

TIME	DURATION	DEPARTMENT	ACTIVITY	AREA
10 a.m.	All day	Faculty secs.	Course information	Conference Room, Union (9).
	All day	Radio station	Records, adverts., announcements	Mtg. room 1 and 2, first floor (9).
	All day	Union	Clubs, societies, sports clubs tables	1st floor foyer (9).
	All day	Christian Radicals	Art exhibition	Fishbowl, ground floor, Union (9).
	All day		Aboriginal art collection	Robert Blackwood Hall (2).
	All day	Draft Resisters	Display	Forum.
	All day	Monash Players	Displaced theatre	Around campus.
	All day	Railway Club	Miniature railway, rides on the train	Outside S.S. Bank, Union lawn (9).
	All day	Astronautical	N.A.S.A. films incl. "Apollo" and "Skylab"	S4 (24).
	All day	Ceramic Club	Club pottery display	Near Grill Room, ground floor, Union (9).
	All day	Ukrainian Club	Ukrainian Culture display	Mtg. rm., 4, western end Union (9).
	All day	Weaving	Demonstration	Weaving Room west end, Union (9).
	All day	Biology	Display	1st year lab. (18).
	All day	Christian Science	Display	Vestry G10, Religious Centre (8).
	All day		Pottery demonstration	Pottery studio, ground floor, Union (9).
	All day	Union Fine Arts	Course demonstration incl. sculpture, jewellery making, life drawing and Sumi-e.	Ground floor, west end, Union (9).
	5½ hours cont.	Academic dress display	Dress regalia and Sir John Monash items	Mezzanine floor Robert Blackwood Hall (2).
	2 hours	Anthropology and Sociology	Films: "North Indian Village"; "Angotee"; "The Muruts of North Borneo"; "Bushmen of Kalahari".	H2 (10).
	1 hour	Indian Assoc.	Films: "Magic Touch"; "Do You Know?"; "This is Our India"; "Invitation To a Wedding" and "Across India".	H1 (10).
	1 hour	Malaysian Students Union	Films	R2 (7).
	3 hours	Union	Children's Films	Union Theatre (9).
10.30 a.m.	1½ hours	Evangelical Union	Films	C'tee Rm. Union (9).
	2½ hours	Indonesian	Videotapes	R5 (7).
11.00 a.m.	1½ hours	German	Films: "The Rhine"; "Deutschlandspiegel".	H1 (10).
		Malaysian Students Union	Dancing display	If fine: outside Union, north end.
	1 hour	Music	Indonesian Gamelan Orchestra	If wet: rehearsal room (9).
	1 hour	Spanish	Films: "Brazil, Portrait of a Country"; "South America"; "Spain".	Alexander Theatre (6).
				R2 (7).
12 noon	1 hour	Indian Dance	Dancing display	Rehearsal Room, Union (9).
	1 hour	Malaysian Students Union	Films	R2 (7).
	1 hour	MUMCO Musical Theatre	"Moments of Musical Theatre".	Alexander Theatre (6).
12.30 p.m.	1 hour	Engineering Students	Barbecue.	Outside E1, 2 3 (29).
1.00 p.m.	1 hour	Monash Players	Play: "A Resounding Tinkle", by N. S. Simpson.	Union Theatre (9).
	1 hour	Monash Players	Children's Theatre	Forum.
	1 hour	Religious Centre	Tudor Music by Monash Chapel Singers.	Large Chapel (8).
	2 hours	Anthropology and Sociology	Films: "The Hunters"; "People of The Kalahari Desert"; "Loons Neck-lace"; "American Indian Mythology".	H2 (10).
	1½ hours	German	Films	H1 (10).
1.30 p.m.	1½ hours	Aust. Contemporary Dance Theatre	Modern dancing	Alexander Theatre (6).
2.00 p.m.	2 hours	Law Students	Mock Trial: "Citizens of the planet Earth vs. Albert Einstein, Robert Oppenheimer, Max Planck and Lord Rutherford".	Moot Crt. (11).
		Malaysian Students Union	Malaysian dancing	If fine: outside Union, north end.
	1 hour	Spanish	Films	If wet: Rehearsal room, (9).
	1 hour	Union	Children's Films	R2 (7).
2.45 p.m.	½ hour		Vice-Chancellor's talk	Union Theatre (9).
3.00 p.m.	½ hour	Baha'i	Film: "A Fable".	Alexander Theatre (6).
	1½ hours	History	"From Batman to Chloe".	R5 (7).
	1 hour	Indian Assoc.	Films	Union Theatre (9).
	1 hour 35 min.	Japanese	Film: "Utamaro and His Five Women".	H1 (10).
	1 hour	Malaysian Students Union	Films	H2 (10).
	1½ hours	Monash Players	Theatre Workshop	R2 (7).
	1 hour	Religious Centre	Program of Tudor Music	Alexander Theatre (6).
4.00 p.m.	1 hour	Spanish	Films	Large Chapel (8).
8.00 p.m.		Monash Players	Play: "Mother Courage" by Brecht	R2 (7).

Hospital work on display, too

A significant proportion of the University's work is not done within the University itself but in a network of teaching hospitals scattered around the metropolitan area.

These include Alfred, Prince Henry's, Children's and Queen Victoria Hospitals and their geographical isolation precludes their active participation in Open Day.

However, a number of off-campus medical departments have made a valuable contribution in the form of displays illustrating the work carried out in their respective fields.

Among them are:
Social and Preventive Medicine:
Aboriginal health and migrant health.

Pathology: Cancer—Research for survival.

Paediatrics: Foetal lung development.

Microbiology: The environmental, medical and industrial aspects of the interrelationships between microbes and man.

The Microbiology display is located in room AGO3, Medical School (No. 12 in the key map) and the others in the multi-purpose laboratory, western side of the same building.

BAHA'I LECTURE NEXT MONTH

Dr. Iradj Master, a former associate professor at Pahlavi University, Shiraz, Iran, will give a public lecture for the Monash Baha'i Society on Monday, September 4.

The lecture, titled "Introducing Persia: the origin of world unifying ideas and forces," will be held at 1.10 p.m. in the Rotunda.

The society, which is one of the smallest groups registered with the University's Club and Societies Office, will also be active on Open Day. It will have an information table in the Union and show a film in the Rotunda.

HELPING IN THE LEARNING PROCESS

The Higher Education Research Unit has been established basically to assist in the learning experience being provided for students.

To this end television equipment has been purchased so lecturers can be taped—the lecturer can judge his performance and see the reaction of his students.

On Open Day audio-visual equipment used by HERU will be on display in the Education Faculty.

Two TV cameras will be in operation and visitors to the faculty will appear on television monitors.

The micro teaching technique will also be described (for an outline of this work involving students from suburban high schools see page 11).

The following is an outline in more detail of the varied operations of HERU which has an academic staff of four supported by two research assistants.

(1) Technical Research and Development:

Teaching techniques are researched and developed and are tested out in normal situations. This, in turn, may lead to the development of manuals, text books or even training programs in the use of a particular technological procedure. A current example is a research project to consider the curriculum and instructional methods for a course in reading efficiency for university students.

(b) Educational Surveys: This is a service provided to any official group that wishes to obtain information to aid it in educational decision making.

Requests for surveys may come from the University as a whole, from departments, from committees associated with particular courses of study, or from student groups. Examples of such projects include studies of the work load imposed on students by subjects or courses, descriptions of the incoming student population and surveys of educational procedures currently being used within the University.

Also included are studies of inter-university activity, such as a current survey on the use of television in university teaching. This survey is being conducted in collaboration with the Tertiary Education Research Centre, University of NSW, and is supported in part by a grant from the Australian Vice-Chancellor's Committee.

(c) Educational Practices Advisory Service: This includes in-service training activities such as forums, seminars, workshops and induction courses to assist new staff with their teaching and also to provide experienced staff with the opportunity to increase their knowledge of educational practices.

Another activity is the dissemination of information on educational matters to members of the University. This is currently carried out by the publication of "Notes."

The Unit is also responsible for the Educational Practices subjects of the Diploma in Education (Tertiary); a course which has been developed by the Education Faculty specifically for experienced tertiary teachers.

Advice for students

A special service to provide advice for prospective university students will be provided by the Careers and Appointments Office on Open Day.

It will be held in the Careers and Appointments Office, first floor, Union Building (9 on map).

Academic staff from six faculties will be available to discuss conditions of admission, course structures, and faculty regulations and requirements.

Staff from the Careers and Appointments Office will be on hand to answer queries on careers and to supply current information on career opportunities.

Advice on student housing, study difficulties and the problem of transition from school to university will also be available.

OPEN DAY ACTIVITIES



"MAGIC" FROM THE CHEMISTS

For Open Day the Chemistry Department is planning what it describes as "a spectacular bag of chemical magic feats complete with explosions, colored smoke and devils potion."

The department is using the simple formula of fun and entertainment to produce learning.

The two "magicians" for the 60-minute show will be Dr. Peter Leverett and Dr. Enn Elbing who are pictured above at rehearsal.

It will be held at 2.30 p.m. in lecture theatre S6.

After the smoke and smells have cleared from the lecture theatre—at approximately 3.50 p.m.—Professor Ron Brown will give a talk on life in space.

Prof. Brown was part of a research team which recently discovered the existence of the formalimine molecule in space—a molecule which may hold a key to the beginnings of life. It was discovered through the CSIRO radio telescope at Parkes, NSW.

A working and static display of Prof. Brown's study, microwave spectroscopy, will be featured in the first year teaching laboratory. Other displays will also be mounted in the laboratory.

Groups of first, second and third year students will demonstrate experiments conducted in normal practical chemistry sessions. Research students will demonstrate a wide range of equipment and techniques in spectrometry, chromatography, and X-ray diffraction.

Audio-visual aids used in first year classes will be on display.

Learning about the environment

Environment is a subject that everyone talks about these days—but one that's often difficult to define, or even learn about.

For Open Day, the Hargrave Library, which serves the university's science and engineering faculties, is mounting a special display dealing with this all-important topic.

It will provide an invaluable guide to a wide range of reference material touching on the environment and the threats confronting it: water and air pollution, the effects of chemical sprays, Westernport Bay, the Stockholm Conference, town planning, the year 2000—and many more.

The display will be arranged in collaboration with ERIC—the student-run Environmental Research Information Centre.

Lessons on the metric system

How much do you know about the new metric system? On Open Day the Physics Department will give a few simple examples of what is in store.

Members of the public will be able to easily relate to the conversion examples on display.

- People will be able to weigh themselves in metric measure and then consult a chart to establish their ideal height/weight ratio.

- Computing scales will be used to show how everyday grocery items are priced in terms of cents per kilogram.

- A calculator will convert speed readings in miles per hour selected by visitors to kilograms per hour.

WHAT ARE THE STUDENTS UP TO?

More than 150 student clubs, societies and sporting bodies, covering a fascinating range of interests, are active on the Monash campus.

These are based largely in the Union and the Sports and Recreation complex, and many of them will be playing a significant role in Open Day activities.

One of the more spectacular events (weather permitting) will be a display of parachute jumping by members of the Monash Skydiving Club. There will also be a full round of normal sporting fixtures on the various sports fields around the university.

Other bodies taking part will include:

Astronautical Society; Baha'i Society; Draft Resistance; Society of the Faculty of Economics and Politics; Electrical Engineers; Evangelical Union; Malaysian Students; Engineering Students' Society; Monash Players; Modern Dance; Indian Dance; Railway; Tae-Kwon-Do (Karate).

Another group of students will be operating a campus radio station, transmitting to a number of points throughout the university.



A poem by Australian poetess, Judith Wright, is the basis of a work to be performed in the Alexander Theatre on Open Day by the Australian Contemporary Dance Theatre in association with the Monash Modern Dance Group.

It will be in the Alexander Theatre from 1.30 p.m. to 2.30 p.m.

Pictured above in a scene from the poem dance are, from left, Jennifer Kinder, Lynn Howard, Glenda Lum. The dance is called "The Finding of the Moon" and Glenda, dressed in white, is the "moon girl."

STUDENT THEATRE



ABOVE: Each year the Monash University Musical Theatre Company performs a musical comedy. This year they chose "Follow That Girl", and a scene from the show is pictured above. On Open Day the company will present an hour of musical comedy in the Alexander Theatre from 12 noon to 1 p.m.

BELOW: A scene from Brecht's "Mother Courage", currently being performed in the Alexander Theatre by Monash Players. The Players will hold a workshop on Open Day in the Alexander Theatre, from 3 p.m. to 4.30 p.m. Last performance of "Mother Courage" will be at 8 p.m. on August 12.



WHAT YOU CAN SEE AND HEAR AT MONASH IN COMING WEEKS

A DAILY newspaper in a recent review of a Monash concert referred to the University as being "off the beaten track" thus raising doubts about whether Melburnians would attend Monash concerts.

The huge influx of people on Open Day is away from the university norm; for the other 364 days of the year only a small percentage of the general public have much to do with Monash.

Perhaps if they knew more about the wide range of activities taking place—many of which they can attend—then the situation might be different.

It is with this in mind that the Reporter presents a page of some of the coming public events at Monash . . .

THEATRE

Two productions by German company

The German touring drama company, Die Brucke, which has been brought to Australia by The Australian Elizabethan Theatre Trust, will give two performances in the Alexander Theatre in August.

The plays, which both have a bizarre subject matter, are "Woyzeck" and "Der Frieden."

On August 24, at 8 p.m. "Woyzeck," by Georg Buchner, the story of a poor and harmless soldier who has a child by his sweetheart Marie. He turns himself over to a doctor for experiments. Later, Marie is seduced by the Drum Major and Woyzeck hears voices charging him to commit murder. But it is Marie he stabs, not the seducer—"a good, genuine, beautiful murder," comments the doctor.

On August 25, at 8 p.m.—"Der Frieden," an adaption by Peter Hacks of a comedy by Aristophanes, Trygaios, and Athenian vintner, tires of the war and flies to Mt. Olympus on a giant dung-beetle to seek help. The Goddess of Peace and two assistants are imprisoned in a well. He frees them but, back in Athens, has to perform other feats before enjoying the charms of one of the assistants.

Seats for both plays are \$4 and \$3, and, for students, \$2 and \$1.50.

The idea of Die Brucke was born in 1958 when actors, Dieter Brammer and Joost Siedhoff, travelled all over Central America. With a gradually increasing number of actors, the company has by now toured more than 70 countries.

It was played in Australia once before, in 1968.

BOOK FAIR

Sale to aid research work

The Monash Association's Liaison Committee will hold a book fair in Robert Blackwood Hall from August 23 to 26.

Periodicals, records and rare books will be sold to raise funds to aid work being done by Professor Marie Neale, professor of education. This work involves the rehabilitation programs at pre-school level.

The fair will be open on:—

August 23 from 6 p.m. to 10 p.m.; August 24 from 10 a.m. to 5 p.m.; August 25 from 10 a.m. to 8 p.m.; and August 26 from 10 a.m. to 3 p.m.

A book auction will be held in the mezzanine at 8 p.m. on August 25.

The first Australian Antiquarian Booksellers' Fair will be held in conjunction with the Monash book fair.

Of the 10 antiquarian booksellers' exhibiting, three come from interstate, one from Auckland, NZ, and Bernard Quaritch Ltd. will represent the London trade.

Also at the Alexander Theatre in the near future will be three musicals —

• Barefoot in the Park; with Monash medical students and Alfred Hospital nurses, September 11 to 13, 8 p.m.

• Song of Norway; Cheltenham Light Opera Company, September 22 to 30, 8 p.m.

• Rio Rita; Springvale Light Opera Company, October 12 to 14, 8 p.m.



• A scene from the German drama company's production of "Der Frieden", (The Peace).

LECTURES

EDUCATION: A CENTURY OF STATE CONTROL

A series of lectures by Faculty of Education staff to mark a century of State control will be free and open to the public.

All are on Tuesdays at 8 p.m. and will be held in Lecture Theatre R2 near the Alexander Theatre except on September 19, when the lecture will be in Lecture Theatre H6, Menzies Building.

They are:—

August 29: 'Recent developments in the application of Psychology to classroom learning'—M. Balson.

September 5: 'Schooling—and some alternatives'—F. J. Hunt.

12: 'The 1872 Education Act—One hundred years later'—R. J. W. Selleck.

19: 'One Hundred Years of Mathematics Education'—T. H. MacDonald.

26: 'Current Issues in Measurement and Evaluation'—J. H. Theobald and J. A. Fyfield.

October 3: 'Special Education—Its contribution of human suffering'—M. S. Jackson.

Further information may be obtained from Dr. J. R. Lawry, Faculty of Education, 544-0811 extensions 2852, 3280.

ECONOMIC THINKING

Professor R. W. Clower, Professor of Economics at the University of California, Los Angeles, will deliver the 1972 Monash Economics Lecture in the Alexander Theatre on September 4 at 8.15 p.m.

Its title is "The Ideas of Economists" — "A discussion of the nature of economic thinking and its relation to contemporary policy issues."

Prof. Clower, a former Rhodes scholar, is a special lecturer at Monash, during the second semester. He is also an editor of The American Economic Review.

Admission is by invitation and enquiries should be made to Ivan Gregory, ECOPS Faculty Secretary.

THE REVOLT AGAINST SCIENCE

Professor J. A. Passmore, Professor of Philosophy, Institute of Advanced Studies, at the Australian National University, will deliver the second Oscar Mendelsohn Lecture in the Alexander Theatre on September 6 at 8.15 p.m.

Its title is "The Revolt Against Science". The lecture is free and open to the general public.

The Oscar Mendelsohn Lectures are financed by a gift to the university by Oscar Mendelsohn, leading Melbourne chemist, author, musician and wine and food authority.

The object of the series is to "promote the study of humanism, materialism, positivism, and other effects of the application of the scientific attitude to human affairs and thought generally".

FOLK MUSIC

Eight-day festival at Monash

The Monash Folk Music Society will hold an eight-day intervarsity folk festival from August 19 to 26.

There will be workshops, listening sessions, films, concerts and a dance.

Artists appearing include Desiderata (Gordon and Andrea McIntyre), Juan and Juanita, John Graham, Alex Hood, Jeannie Lewis, Graham Lowndes, Captain Matchbox Whoopee Band, Margaret Roadknight, Danny Spooner and Dutch Tilders.

CONCERTS

TWO MONASH MUSIC SERIES

MONASH is currently holding two series of classical music concerts — one on Sunday afternoon and the other on Mondays at lunchtime.

The Sunday concert series has been organised in an attempt to promote Monash as a cultural centre in the south-eastern Melbourne area.

In both cases the concerts are held in the 1348-seat Robert Blackwood Hall. Admission is free.

The head of the Monash Music Department, Professor Trevor Jones, has described the concerts as good "middle-of-the-road" music with wide appeal.

The Monday concerts are held regularly throughout the year for staff and students but the general public is welcome to attend.

Two of the five Sunday concerts have been held. Those remaining are as follows (each begins at 2.30 p.m. - doors open at 2 p.m.):

September 24:— A chamber group with works by Schubert, Brahms and Bach.

October 22:— The 30-voice choir and orchestra of the Astra Chamber Music Society will present requiems by Faure and Cherubini.

December 3:— The National Boys' Choir and the Chamber Orchestra Group with Christmas works including the Bach Cantata, "Unto Us A Child Is Born".

Monday program

The Monday concerts are held from 1.10 p.m. to 2 p.m. Program details are as follows:

September 4:— The Latrobe Chamber Ensemble, with a program including the first performance of the instrumental suite "The Third Day", by Melvyn Cann.

September 11:— Australasian Chamber Group - works by Beethoven, Hindemith and Rawsthorne.

September 18:— Australian Chamber Group - works by Martinu and Arensky.

September 25:— Jochim Schubert (guitar), Vernon Hill (flute), Barry Johnson (double bass) and Philip Mischel (clarinet) - works by Kreutzer, Pfitzer and Kubizek.

October 2:— Susan Ellis (guitar), Sadie Bishop (guitar) and Christopher Martin (violin) - works by Paganini, Schneider, Albeniz and Cugley.

October 9:— Bruce Knox (recorder), Susan Ellis (guitar) and Annette Martin (cello) - works by Handel, Antonio Lotti and Arnold Cooke.

October 16:— Music for violins and cello - Nirwan Idrus, Rijadi Idrus and Martin Ambrens, violin, and Rizal Idrus cello.

Other dates for Blackwood Hall:

• Renaissance Consort of the Tasmanian Conservatorium will present a selection of the vocal and instrumental music of 15th and 16th century Europe on September 22, at 8 p.m. Admission: adults, \$1.50; students and pensioners, 75c.

A concert by the Elizabethan Theatre Trust Melbourne Orchestra conducted by Georg Tinter on October 18, at 8 p.m. Admission free.

Enquiries for all concerts — The Concert Manager, Miss Adrienne Holzer, 544-0811, ext. 2002.

The festival will be held in the Alexander Theatre, Robert Blackwood Hall and in lecture theatres and rooms in the Union Building. The dance will be in the Union on the night of August 24.

Tickets are \$7.50 for the eight days and \$3 for three concerts (two Saturdays and Sunday, August 20).

Bookings can be made by mail to— 1972 Folk I.V. Monash Folk Music Society, C/o Union Building, Monash University, Clayton, 3168.

or at the Alexander Theatre or by phone — 544-0811, ext. 3992, between 9 a.m. and 5

MONASH AND THE COMMUNITY

SCHOOLS HELP IN TV TEACHING AND RESEARCH

TELEVISION is being used by the Education Faculty in two different ways to train future teachers.

First, Monash diploma of education students give lessons to students at Monash High School in the school's television studio.

These lessons are video-taped and played back to the students so they can go over their teaching style and determine any faults.

Second, schools in outlying suburbs such as Syndal and Westall come to Monash to act as experimental "mini classes."

These classes are part of a project to investigate the whole effectiveness of the use of television to teach and to train teachers.

The twin ideas of a small class plus only part of a lesson are examples of what is known as the "micro-teaching" approach to training teachers.

How does it work? Basically, in the Monash operation, it involves a TV camera filming a student teacher taking a class of up to ten students for five to 10 minutes.

This lesson segment is video-taped so that the student can study himself or herself in action.

According to Professor P. J. Fensham, the man in charge of the Monash High School project, this is not as nerve-wracking as it sounds.

"Certainly it's not so unnerving as taking a strange class into which you are thrown without friends around," he said.

"It is hard to convey criticism to a student in a sufficiently kind, accurate and gentle way. With this, you don't have to say a word. Some see the start of the tape and say 'Oh, please turn it off and let me have another go.'

"It leads to an enormous amount of self-criticism which in many ways is more valuable than external criticism."

High school studio

By this method, a group of six or seven students can be "taped" in half an hour. The students go to Monash High School because it has a TV studio with a viewing window between the control room and classroom.

Sitting in the studio, students look—and learn—through the window as each takes the class in turn.

The pupils cannot see the watchers but of course know they're there and happily give their verdict on the students when asked.

"Usually they start with something like 'She's a good looker,'" said Prof. Fensham. "Then they get down to constructive criticism which is often instructive—'He didn't make the point clear' or 'She didn't make me feel interested in that'."

Prof. Fensham describes the concept of micro-teaching as a major breakthrough in teacher-training as it "dissects" the teaching task.

"In the past teachers learnt on the job either by natural gift or unpleasant experience" he said. "This way they can practise before going off to a school where there may be no-one to help or criticise."

"The system has its critics. Some say it's an artificial situation, too short to be of use and not the real thing, but it's still much better than a text book."



The other work on teaching by television involves the faculty's Higher Education Research Unit.

The unit was given a grant of \$15,000 by the Australian Advisory Committee on Research and Development in Education to cover research into micro-teaching from 1971 to 1973.

"It's a technique that costs a lot of money and our unit has been asked to find whether the expense is justified," Mr. J. C. Clift, director of the unit said.

So far the unit has put 92 diploma of education students through a program where each student has given about five micro-lessons to pupils brought to Monash from schools throughout the suburbs.

The unit's own TV cameras are used for the lesson.

Mr. Clift said one side effect of the program was that a number of pupils had said it had made them appreciate the teacher's task far more than before.

Whatever the outcome of this research, says Mr. Clift, one result is certain—all students who underwent the experiment said it had given them far more confidence in handling a class of pupils.

ABOVE: There is no better way to learn than by your own faults. Monash diploma of education student, Lorna Wilkinson (centre) is "watched" by television cameras as she takes a "mini class" at Monash High School. Technician Graham Wallington (left) operates the videotape equipment, while Monash High staff member Peter Knight, looks on. BELOW: A student, Irene Siew Hong Yik, watches a replay of her lesson. The idea is for students to judge and discuss their own teaching performance.

—(Photos: The Sun)



LAW STUDENTS HELP PEOPLE WITH PROBLEMS

By COLIN O'HARE, Legal Referral Service secretary.

The Legal Referral Service has undergone rapid expansion since its inception in April, 1971.

In its formative days a handful of Monash law students dealt with an average of five enquiries per week.

The Service now engages some 85 students to handle the average 35 enquiries per week.

In addition to its premises at 107 Russell Street, the Service has opened an office at 5 Osborne Avenue, Springvale.

Under the leadership of Don Fleming, Monash law students and graduates are rostered to interview members of the public who seek guidance about their legal problems.

The Service makes no attempt to render legal services, its staff being unqualified to do so.

It recommends the most appropriate course of action to solve problems and refers clients to a variety of legal and social agencies in Melbourne. The Service may be described as a communication channel through which members of the community can gain access to legal advice.

A large number of people in the community have problems which involve legal considerations and yet, for a variety of reasons, proper legal counselling is inaccessible to them.

The two major difficulties confronting the public are to recognise that a problem may have some legal content and to realise that, through the service, legal counsel is available to them.

The Service is currently embarking upon a program designed to make the public more conscious of legal problems and aware of the facilities of the Service. For example, a booklet will shortly be published for distribution explaining the legal services provided by the various agencies in Melbourne.

Clayton oreo

Other brochures in a number of languages are being distributed in the Clayton area advising of the Service's facilities.

Also the Service is investigating the need for, and feasibility of engaging, qualified solicitors to provide free legal services to members of the community who would otherwise be denied access to the legal system.

The voluntary work of law students enables them to gain invaluable insight into the types of problems prevalent in the community and the inadequacy of the legal system to dispense justice to the underprivileged.

On the lighter side . . .

HOW VALUABLE IS RUBBISH?

Contacts between Monash and its staff and the high schools in the area cover a wide and curious range of activities.

Take for instance garbage.

That happens to be the link at the moment between Dr. Ian Rae of chemistry and Mr. Doug Hill, science master at Glen Waverley High School.

Between chews and quaffs at a barbecue the other day, Hill told Rae about one of the pupils in fourth form at the school who, all in the cause of science, raked the muck of Waverley garbage.

And, believe it or not, a girl: Kathryn Thacker, aged 15.

Presumably at dead of night, she explored the contents of trash cans outside front gates; and she went to the depot to see what came out of the dump truck.

She classified the stuff, on paper, into offal and food waste on the one hand, and recoverable materials on the other: paper, ferrous metals and glass, that could either be reused as found, or could be reprocessed as scrap ('recycled' is the new in-word).

Meanwhile, she had written to Waverley municipality in Sydney asking how they coped with their garbage.

On the disposal of plastics, she wrote to the plastics firms in the pink pages, and learnt that plastics are not recoverable.

She called on many of the firms in Waverley, and asked them what were they doing about their industrial waste. They gave her a mixed reception.

Within the obvious limits of school-girl science, Kathryn did the cost-benefit arithmetic for sorting Waverley garbage, and recovering some of the cost of it from the sale of reusables.

She considered that Waverley would make a profit.

Kathryn's sums may be right, or they may be wrong. But no matter. She and thank heaven others of her age and enthusiasm fear the rising tide of garbage.

So, in her own sensible and determined way, she did something about it—the first steps in scientific inquiry.

Zoologist is a TV star

The ABC and its scientific advisers have scored again in the current series on 'Wild Australia' (ABV 2, Sundays, 7.30 to 8 p.m.).

The scientific adviser, and the narrator, is Dr. Douglas Dorward, Senior Lecturer in Monash's Department of Zoology.

The first of the series of six (Sunday, July 23), on the pelican, was a masterpiece of observation and photography.

Camerawork by Ian Warbuton, editing by Mike Featherstone, and direction by Ken Taylor (you may remember his "Bush Quest" with Robin Hill), were first class.

Some may have queried the music while the camera kept a bird in flight; others may have wondered why the artist was brought in with his board and crayons.

But no one would query Dorward's brief comments at no more than the right places, and his willingness—his determination—to let the birds speak for themselves.

The real talent was *Pelecanus conspicillatus* with its superb flight and its unbelievable pouched bill and the games they play with it, sex and all.

Like most birds, pelican is wary, and easily put off. You can't go stamping around, shouting 'here's one'. To see them by the hundred, you keep quiet and out of the way.

Many of the shots on singles or pairs in flight were at a distance of 200 metres, requiring fine control of the telephoto camera.

Other shots, particularly the pair of chicks playing with a feather—not playing, rehearsing for their lives—were at a distance of only 7 metres. To get that scene, the crew made a hide, and entered it before daylight.

The location for this event was the Coorong, a strip of water between seaward and landward dunes near the mouth of the Murray in South Australia.

By the time this issue of Reporter comes out, we will have seen the Cape Barren Geese, filmed at Flinders Island in Bass Strait and at Glennie Island off Wilson's Promontory; and the brolga dancing on the town common at Townsville.



DR. DOUGLAS DORWARD makes friends with a short-tailed shearwater (muttonbird) chick on Glennie Island, Wilson's Promontory, during filming of the ABC series.

But you should not miss the others: (4) the wedgetailed eagle, in the Werribee Gorge and on the Nullabor Plain, (5) Macquarie Island down South, featuring the Light-mantled sooty albatross, and (6) Arnhem Land, showing crocodiles and turtles and the first filming of the banded pigeon.

As the world rushes headlong to its final doom of overcrowding with homo sapiens and his garbage, let us hope that these films and others like them can be retrieved from the archives to show the last survivors what the world once was like.

Gilbert Vasey.

Engineering students get televised lectures

By SANDRA INGWERSEN

A series of 18 routine course lectures have been recorded on video tape and are currently being transmitted through the University's closed-circuit television system for first year engineering students.

Presentation and preparation of the lectures involved close co-operation between the Civil Engineering Department, the Audio Visual Aids Section, and the Higher Education Research Unit.

The videotaped lectures are being given in a "team-teaching" method by three civil engineering lecturers—Dr. Ken Atkins, Dr. Peter Darvall and Dr. Tom McMahon. Personal contact between lecturer and students is being achieved by a discussion period following the taped lectures.

Repeated use of all or part of the tapes over several years will compensate for the longer time involved in lecture preparation. These tapes may also be used by students, including later-year engineering students, for revision purposes.

The idea is to build up a stock of tapes which—just like books in a library—can be taken out by students and studied.

(The Civil engineering television equipment will be on display on Open Day).

This is just one example of the use of television in a modern university.

Television can prepackage a lecture room

presentation and thus allow the lecturer to eliminate problems of integrating film, pictures, graphics etc. prior to the lecture.

Television and videotape offers every student the opportunity of a close-up view of a demonstration or experiment conducted either in the lecture room or previously carried out in a laboratory.

Another unique capacity of television is that it offers the opportunity of immediate and repeatable playback of some event or process for analysis.

In this it has the capacity for providing self evaluation as the student learns techniques involving interaction with people or physical performance, and finally, television can take the students on 'location' and condense a process in time so that the student is able to follow the complete process or a series of processes within one lecture period.

The Audio Visual Aids Section services all Departments of the University, it also undertakes educational assignments for outside bodies.

Some of the facilities available from the Section are 35mm slide programs, 16mm motion picture film, audio tape recordings and dubbings, video tape recordings and replays, and live television presentations in monochrome or colour.

CHOIR FESTIVAL

The choral societies from Monash, Melbourne and La Trobe universities will hold a week-long festival from August 18, culminating in a public concert at St. Paul's Cathedral on August 25 at 8.15 p.m.

The concert will include "Nelson Mass" by Haydn, "Five Mystical Songs" by Vaughn-Williams, and four motets by Giovanni Gabrieli.

Students will come from universities in Sydney, Canberra, Adelaide, Hobart and Brisbane to take part in the festival.

The festival's patron will be the Monash Vice-Chancellor, Dr. Matheson.

The students will spend four days at a rehearsal camp at Queenscliff to learn the works.

The combined choir is expected to have at least 80 members and possibly as many as 120.

Douglas Lawrence, who conducts the Monash University Choral Society, will conduct the Haydn and the Gabrieli and Melvyn Cann, conductor of La Trobe University Music Society, will conduct the Vaughn-Williams.

Books for sale

The Monash representative on the Women of the University Fund has the following books for sale in aid of the Fund's charities. Anyone interested should telephone Netta McLaren on 25 3424.

Ismay, Genl. Lord. *Memoirs*. Pub. Heinemann 1960. Illus. \$2.50.

Walpole, Hugh (Ed). *Gateway of Literature. Five Centuries of Great Tales of Youth*. Pub. Dally Express, 1934. \$2.

Mallart, Ella. *Turkestan Solo*. Pub. Heinemann, 1938. \$1.50.

Bilalinkin, Geo. *Destination Tokyo. Diplomatic correspondence. Urgent warning to the W. about tomorrow in Asia*. Pub. Oldham, 1965. \$1.50.

Dawes, G. C. *Journal as Ambassador to Great Britain*. Illus. Macmillan, 1939. \$1.

Halliburton, R. *Seven League Boots*. Pub. Bles, 1935. \$1.

McLean Watt, L. *Hills of Home, with the Pentland Essays of R.L.S.* Illus. by R. Hope. Pub. Fowles, 1914. \$1.

Grimble, Sir A. *A Pattern of Islands*. Illus. Murray, 1958. \$1.

Pym, Chris. *Misterpim in Cambodia*. Illus. H. & S., 1960. \$1.

Bennett, Arnold. *Sacred and Profane Love. Play in 4 Acts*. Pub. Chatto & Windus, 1919. 80c.

Diary of events

AUGUST

- August 8: Department of History lecture by Dr. Roeslan Abdulgani, former Indonesian Ambassador to the U.N. Topic: Guided Democracy. 4.15 p.m., R.I.
- 8-12: Monash Players, "Mother Courage." Alexander Theatre, 8 p.m.
- 9: Teach-In, Political Intrusion in the University. 2 p.m.-5 p.m., Alexander Theatre.
- Monash Film Group: "Wild in the Streets," members only, 1.45 p.m., Union Theatre. "The Demonstrator," members only, 7.30 p.m., Union Theatre.
- 11: German Department film, "The Captain of Koepenick," 8 p.m. H.I.
- Monash Film Group: "Praise Marx and Pass the Ammunition," members only, 3 p.m., Union Theatre.
- Forum on Brecht's "Mother Courage," Alexander Theatre, 1.30 p.m.
- 15: Monash Women's Society, Vice-Chancellor's House, 10 a.m. Speaker: Prof. Ron Brown, chemistry, "Life in Space." All staff wives and women members of staff welcome.
- Public lecture on pesticides and pollution by Dr. Kenneth Mellamy, director of the UK Nature Conservancy's Monka Wood Experimental Station, 8 p.m. Prince Philip Theatre, School of Architecture, Melbourne University.
- 23-26: Book Fair, Robert Blackwood Hall.
- 24-25: Australian Elizabethan Theatre Trust, "Die Brucke," 8 p.m., Alexander Theatre.
- 25: Combined choir of university choral societies, 8.15 p.m., St. Paul's Cathedral.
- German Department film, "Abschied von Gestern," 8 p.m., H.I.
- 29: Second lecture by Dr. Roeslan Abdulgani on Indonesian Guided Democracy, 4.15 p.m., R.I.
- 30: Monash Film Group: "Deep End," members only, 5.30 p.m., Union Theatre.

SEPTEMBER

- September 5: Teach-In on urban renewal, 7 p.m., Alexander Theatre.
- 11: Lunchtime concert, RBH, 1.10 p.m. Australasian Chamber Group, program Beethoven, Hindemith and Rawsthorne.
- 11-13: Alfred Hospital Nurses and Monash medical students, "Barefoot in the Park," 8 p.m., Alexander Theatre.
- More details of future Monash events are contained on page 10.
- Monash staff and students may join the Monash Film Group at the Union Theatre prior to the above screening times. Membership is \$6 a year which may be paid by \$1 deposit and 40 cents at screenings until \$6 is reached. Only August screenings are listed above.

Copy deadline for the next issue of Monash Reporter is Friday, August 25. Letters and contributions from staff and students should be forwarded to the editor, Ian Anderson, in the Information Office, first floor, University Offices (phone 3667).