



MONASH REPORTER

An unofficial bulletin for the information of members of Monash University

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SOCIAL RESPONSIBILITY IN SCIENCE

A condensed version of a talk given by Professor J.M Swan, Professor of Organic Chemistry, to the Victorian Society for Responsibility in Science, Clunies Ross House, February 25, 1970.

In a presidential address to the Australian Academy of Science last year, Sir Macfarlane Burnett drew attention to two moral imperatives of science, which he defined as:

1. the intrinsic virtue of scholarly research
2. the maintenance of the human environment in a form which will favour the genetic integrity of the species and the survival and health of the individual.

He also urged that scientists would have to display initiative in these matters, and be prepared to resist or modify public opinion, and the pressures of government or industry, if these two moral imperatives were to be observed.

Scientists thus have a social responsibility to see that scholarly research continues to flourish, and that our environment is maintained in a form which will favour the genetic integrity of man and the survival and health of individuals.

We can deal first with threats to the environment from modern technology. From all sides we are now being alerted to the possible dangers of pesticide and herbicide residues, of chemical smog, of non-biodegradable detergents, of phosphate

build-up in lakes and rivers, of the gross misuse of medical drugs, the dangers of car exhaust gases, the serious health threat of excessive cigarette smoking, the absolute disasters of chemical or biological warfare, and atomic warfare. There are other related problems - soil erosion; the slow destruction of plant and animal life leading to a grossly changed environment; the slow but steady increase in carbon dioxide content in our atmosphere leading perhaps to a new ice age, the uncontrolled expansion of human numbers.

All of these are problems which responsible people must recognise and make known, and for which they must seek the best possible solutions.

In particular, scientists must not hesitate to speak out if and when any development of science or technology seems likely to threaten our genetic integrity or the survival and health of individuals. But of course there are difficulties. When does one know with any real certainty that a new agriculture chemical, a new military weapon, a new type of engine, even overt endorsement of a new food or drug, does or does not constitute a threat to the proper maintenance of the human environment?



Professor J.M. Swan

If we do indeed recognise the virtue of schol-

arly research, we are required to make sure of our facts, to approach the supposed problem or threat with proper scientific caution, an unbiased mind, and a willingness to make a proper and detailed scientific study of the matter. And even after a great deal of investigation, there can still be disagreement at the scientific level.

Is D.D.T. really deserving of the bad name it has been given? Is it really a cause of concern that minute traces can now be found in the fats of man, birds and other animals? If it does do harm to certain species of predatory birds like the sea eagles, how do we balance this against the fact that it has been responsible for eliminating malaria from many parts of the world? Do we again want two thirds of the world's population to be at the mercy of disease-bearing insects? And if we replace D.D.T., how can we be sure that the new weapon will not bring its own environmental problem? This brings me to a point which has also been touched on by Sir Macfarlane Burnet on another occasion, and this is the extraordinary difficulty of foreseeing the potential danger to the environment of new advances in technology. He has quoted three examples.

- * No one dreamed that the introduction of synthetic detergents with their polyphosphate "builders" would destroy the whole biological character of many lakes and rivers in the United States;
- * No one predicted that automobile exhaust would drown Los Angeles in an ocean of fog;
- * No one realized that the machine-made cigarette would become almost wholly responsible for the excess of male deaths over female in middle age.

To these we could add many more, all showing the difficulty of foreseeing the potential danger

in new technology.

When the Hovercraft was invented it was hailed as an exciting discovery, a revolutionary new concept in transport, especially over difficult terrain. Undoubtedly it would prove a blessing in moving goods and people quickly and cheaply in areas where road construction is difficult or impossible. But already the conservationists are alarmed. It seems that the use of hovercraft over mudflats, estuarine marshes and tidelands, just the terrain which would seem most suitable, can lead to destruction or despoilation of the special and unique communities of plants and animals that thrive in these areas. In the name of cheap transport we may do unexpected damage.

Barbiturate Drugs

Since drugs are so much in the news, and drug dependence is now so widely recognized as a social phenomenon, let me mention another example - the barbiturate drugs. These organic compounds have a depressant action on the central nervous system and are used medically as sedatives and soporifics. The first of them, "diethyl barbituric acid", was synthesised in 1882 by the reaction of ethyl iodide with the silver salt of barbituric acid. In 1903, von Mering discovered the hypnotic properties of this compound and called it Veronal because he considered Verona to be the most restful city in the world. No outcry from the socially responsible scientists. Phenobarbital was introduced a few years later under the trade name Luminal. This compound has specific action in preventing epileptic seizures. Applause from the medical profession, excepting a Dr. Wilcox who in 1913 pointed to certain dangers of barbiturates. Not outcry yet from other socially responsible scientists. Amytal and Nembutal then appeared; these act more quickly but have a shorter duration than either

Veronal or Luminal. Sodium pentothal, a related barbiturate drug, was then introduced for use as a general anaesthetic by intravenous injection, and was widely used for major surgical operations in the front lines of battle during World War II, owing to its ease of administration, rapid action, and rapid recovery of the patient. Still more applause from the medical profession, still no word from the socially responsible scientists.

What do we find now? We learn that the indiscriminate distribution and use of barbiturates and the danger of overdosage has made them a hazard to a large section of the population - a far greater hazard than D.D.T. has ever been or possibly ever will be.

Barbiturates are the most commonly used addictive drugs, with by far the most addicts, leaving aside alcohol and tobacco. Some people think that barbiturates are more pernicious than heroin. Abuse, addiction and suicide with barbiturates are taken as normal events of domestic life.

The addict, usually a middle-aged, overwrought person tends to dope himself until he is completely intoxicated. He neglects his personal appearance, he is unable to work or to care for himself adequately. He will often be rejected by his family, lose his job and his friends. His general behaviour resembles that of a chronic alcoholic. Any tendency to depression is accentuated by chronic barbiturate intoxication, and the withdrawal syndrome is very severe.

Despite all this, barbiturates are prescribed wholesale by almost every G.P. Patients who go to a doctor with vague psychiatric and social troubles are likely to come away with a script for barbiturates. Some 10 years ago an article in the "British Journal of Addiction" commented that there was no doubt that "Barbiturates are misused on a vast

scale".

Laurie, in his recent book on drugs, comments on all this as follows :

"The place of barbiturates in public opinion is curious. Although there are 8,000 cases of barbiturate poisoning a year, although they are the second favourite means of suicide after coal gas, and the favourite means of attempted suicide, although the dangers of drinking on top of "sleeping pills" are well known, and the dangers of addiction known anyway to doctors, barbiturates are regarded as a normal, friendly feature of life. No home is without them; and the man who crashes his car under their influence, or the woman who kills herself with a handful is reported in the papers as having 'taken an overdose'. No more need be said; we all know of what."

When I read Laurie's book, I was slightly sceptical of this, and wondered whether it applied to Australia. Do we here also treat barbiturates so casually? Just one day later I read an exchange in the current enquiry on abortion in Melbourne between a woman witness and a police inspector. "Is it true", he said "that on a trip overseas you tried to kill yourself by taking an overdose?" Not an overdose of salt, or of alcohol or of arsenic; just an overdose! Laurie is right - the policeman is talking about barbiturates.

Returning to the main theme we can now ask : At what stage could the socially responsible scientist have leapt to the barricades and asked Sir Arthur Rylah to stop worrying about "The Group" and other innocuous literature, and give thought to the barbiturate menace? And who is the real culprit? Do we aim our arrows at the drug manufacturer, or the importer, or the pharmacist, or the doctor, or simply at the addicts themselves -

those people who will always find some intoxicant to ease their burdens, no matter what the law? If they can't get beer or whisky they will settle for beeswax dissolved in methylated spirit; if they can't get hallucinogenic mushrooms they will settle for banana skins, or Morning Glory seeds, or injections of Vegemite, or barbiturates from the local G.P.

Laurie maintains that "drug problems are the price we must pay for having effective medicines". The more sophisticated the pharmaceutical industry, the wider the range of useful and valuable remedies, the greater the chance that one or more of them will become a drug problem. If we tighten controls on barbiturates we are likely to increase their attractiveness to the potential addict, we may start a black market operation in manufacture and sale, and hence in an indirect way encourage criminal activity. Black market supplies will always be impure and adulterated; this greatly increases the risk to the addict and potential addict.

Social responsibility in the field of medical drugs is thus a very difficult path to tread. The way ahead is never plain, the way back is always denied to us. We can never return to a state of innocence, we cannot pretend that barbiturate drugs do not exist, we cannot expunge the methods of manufacture from the chemical literature. And one final point must be made, in the same terms as I used about D.D.T. Let us not forget that while there are indeed barbiturate addicts, these barbiturate chemicals have been of considerable medical benefit to a great many people over a great many years. The chemists who discovered and promoted barbiturates were not, in my opinion, foolish or criminal. It would have been difficult, if not impossible, for any concerned person, at any stage, to point to a white coated worker in his laboratory, and say "you should not be doing

this research, it is socially undesirable".

Even in situations where the social harm of a given chemical would seem to be beyond dispute we can find reputable and cautious scientists putting an opposite point of view. Morphine and heroin addiction would seem to be a major disaster for the addict, his family and the community. Yet it is now responsibly argued that many such addicts are possibly incipient schizophrenics, that without the drug they would become truly schizophrenic, and that they may be better off, and less risk to the community as drug addicts, than shut away in asylums as incurably insane.

Cyclamate

Another example of the dilemma of the scientist with a social conscience, advising the public about possible threats to the environment in relation to survival and health, is to be found in the cyclamate story.

This would seem to be a straightforward matter. Here is a synthetic chemical which has been used for many years as an artificial sweetener - in Sucaryl tablets for example. It was shown recently that when given in very large doses to rats, - at 50 times the level recommended for human intake - it causes bladder cancers in up to 50% of the test animals. The U.S. government, acting on the Delaney amendment which states that no food additive is legally safe "if it is found to induce cancer when ingested by man or animal", promptly banned cyclamate, but immediately came under pressure from the industry to relax the ban on the ground that "there is no significance in finding bladder cancers in rats fed 50 times the levels recommended for human intake".

Some scientists were unhappy that the ban was applied, others were pleased. Joshua Lederberg, a Nobel Laureate and a professor of genetics

at Stanford, who felt that the government had acted correctly, pointed out that consumers represent a wide spectrum of variation in genetic constitution, age, health, pregnancy, diet, exposure to drugs and other additives - and all these factors could influence their response to a possible cancer-causing chemical. He believes that we cannot ignore the positive warning when 50% of a small group of animals show bladder cancer on being fed a given chemical, no matter what the dose.

If an animal gets cancer from a chemical at a high dose level it is unscientific to believe that the dose-response curve in every possible consumer will have a no-effect threshold at some intermediate level.

I happen to agree with Lederberg's arguments, but I shall now put to you some opposing views. Michael Sveda, who discovered cyclamate, points out that while the sweetener may be toxic in massive doses, so also are plenty of natural foods, including salt and sugar. Jacob Rosin feels that the Delaney law is absurd because it deals only with "food additives", the implication being that "natural" foods are above suspicion. He then points out that the very dangerous poison 5-vinyl-2-oxazolidithione, which is thyrotoxic to humans and animals, has been identified in rutabaga, turnip, kale, cabbage, cauliflower, kohlrabi, brussels sprouts, and broccoli. 3, 4-Dihydroxyphenylalanine, found in certain beans, induces a form of toxicity known as favism. Consumption of peas of the genus Lathyrus in large amounts produces a disturbance of the central nervous system known as lathyrism. Phytic acid, which is present in whole wheat, oatmeal, and other cereal grains can be injurious to health because it interferes with the assimilation of iron and calcium by our organism. Raw egg white contains avidin, which inactivates the vitamin biotin.

The enzyme thiaminase, found in clams and raw fish, destroys vitamine B₁. Oxalic acid is a potent poison and is found in certain leafy vegetables, including spinach. Caffeine, contained in coffee and tea, and theobromine in cocoa, are dangerous drugs which cannot be purchased without a prescription, and recently caffeine has been found to be mutagenic, at least to bacteria. Rosin suggests that "if we start a witch-hunt on cyclamate, saccharin, monosodium glutamate and the many other food additives, none of which show any indication of being dangerous at the low levels at which they are used, and continue this anti-chemical McCarthyism to include D.D.T., the organophosphorus insecticides and anything else 'not natural', we are likely to return to the good old days of the Middle Ages when people ate only home-grown natural, unadulterated food and enjoyed an average life span of 40 years, while mosquitoes, lice, ticks, flies and bacteria lived undisturbed to a ripe old age."

That to me is special pleading, a misleading argument of no relevance to cyclamate, but if Lederberg is "socially responsible" it would not be fair to say that these other scientists are "socially irresponsible". They simply see the facts in a different light, and draw different conclusions.

What then do I suggest should be done on all these various issues involving science and technology? I hold fast to Sir Macfarlane Burnet's moral imperative that we recognise the intrinsic virtue of scholarly research, and study and continue to study all these problems with all the resources we can muster. But this is not an appeal to scientists to simply retreat into their laboratories. Research is not just finding out, it is finding out and communicating the results.

Research without publication is a sterile

activity. Talking about the results is just as important as doing the experiments, and if your research has a bearing on social problems, on the quality of the environment, on community health, on the whole strategy for survival, it is especially important that you bring your results to the notice of the widest possible audience. For this reason I believe that the Victorian Society for Social Responsibility in Science has an important role to perform.

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GIFT OF BOOKS FROM U.S. CONSULATE

The Consulate General of the United States in Melbourne has presented to the Library a collection of 82 volumes in the fields of history, political science, economics, and literature. Many of the books are in two or three copies; the total number of titles is 38. The unifying theme of the collection is its relevance to American Studies.

This is the most useful kind of gift the Library can get: a sizeable and skilfully chosen collection of books in related subjects, all bearing on a single broad theme of first-rate academic importance. Add to this the fact that the numbers of copies show an awareness of the practical problems of providing for the needs of large numbers of students, and you have the perfect gift.

Money's nice too, of course.

In case this should sound a bit solemn, it could be mentioned that several of the books are fun to read, e.g. two collections of short stories by John Updike, and a volume of Ogden Nash.

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INTRODUCING M.A.L.C.

M.A.L.C., or the Monash Associations Liaison Committee, is a newly-formed committee of delegates from the following individual Associations interested in and working for the University:

Member Association	Delegate	Alternate
Monash University Staff Association	Dr. J.S. Duncan	(Mrs. G. Blain)
Monash University General Staff Association	Mr. M.J. Reid	(Mr. G.S. Wilson)
Monash Association of Students	Mr. T. May	
Monash University Clubs and Societies Council	Mr. C.W. Porritt	(Mr. Phillip Hamilton)
Monash University Sports Association	Mr. A.J. Gough	
Monash University Research Students Association	Mr. B. Arnott	(Mr. Jon Hore)
Monash Graduates Association	Mr. R.B. Pitt	
Monash University Parents Group	Mrs. S.A. Hicks	
Monash Women's Society	Mrs. J.A.L. Matheson	
Monash Faculty Club	Mr. G.J.F. Troup	
Friends of the Library	Assoc. Professor W. Kirsop	(Mr. L.N. Shaw)

Chairman of the Committee is Mrs. A.M. Hutson, of 25 Surrey Road, Dandenong, a former President of the Parents Group. Dr. J.S. Duncan (Geography) is Deputy Chairman. The Vice-Chancellor is a member ex-officio. Other members are the Information

Officer (Mr. R.J.W. Howard), the Careers and Appointments Officer (Mr. W.H.C. Mann), the Honorary Recorder, M.U. Development Fund (Mrs. I.J.C. Lasry), and the Personal Assistant to the Vice-Chancellor (Mrs. J. Dawson). The Committee's Executive Secretary is Miss Adrienne Holzer, Vice-Chancellor's Office.

M.A.L.C. succeeds the former Monash University Association. Its objectives, continuing on the lines of M.U.A., are:

- (a) To provide an opportunity for parents and others interested in Monash University to associate themselves more closely with the University;
- (b) to encourage contact between members of the University and members of the community for their mutual benefit;
- (c) to assist with specific projects associated with the University and help raise funds for specific University purposes.

M.A.L.C. will proceed either by forming sub-committees to carry out particular tasks or by allocating a particular task to one of its constituent groups.

By joining in the formation of M.A.L.C. the constituent groups have incurred no obligations that will conflict with their own objectives nor have they necessarily incurred any financial obligation. If asked to help with any project a group will be expected to give serious consideration to doing so as a group or by trying to find some of its members with an interest in the project.

While M.A.L.C. was in process of formation, the Parents Group offered to take responsibility for Parent Orientation and a most successful orientation day was organized for the parents of new students on Sunday, March 15.

M.A.L.C.'s first meeting was held on March 17 in the Faculty Club, and a good enthusiastic start was made on a number of projects. Your attendance at and publicization of the following PUBLIC LECTURES organized by the Monash Graduates Association is invited:

June 20 Dr. Colin Clarke: "Decentralization"
Sept. 10 Lord Casey: "The Future of the Commonwealth"

Graduating students should note that M.A.L.C. appointed a sub-committee to arrange a GRADUATION BANQUET, to be held on June 6, and should watch for further details. Another function, in the form of a DINNER for parents of first year students, was also discussed.

M.A.L.C. also decided to investigate the possibility of arranging a large promotion function in the form of an ART EXHIBITION to be held in the foyer of Robert Blackwood Hall, times to coincide with Orientation Week, 1971. This is envisaged as a major fund-raising function.

While not planning to continue in 1970 the Monash University Association's country visits on the previous large scale, M.A.L.C. decided that the valuable contacts made in Victorian country towns should be maintained through the despatch of appropriate information about future M.A.L.C. activities, and possibly through smaller scale visits arranged in conjunction with the Adviser to Prospective Students.

M.A.L.C. has an organizational framework. It has a host of well-disposed workers. You could help advance its work by supporting those of its activities which interest you and by supplying ideas of activities that it might undertake in the future. Some of these might involve fund-raising to permit the University to undertake activities

which could not otherwise be managed; others might well be launched because they should be done to meet a need, or just for the enjoyment they would give.

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ACADEMIC VISITORS TO MONASH

The Vice-Chancellor has asked to be kept informed with advance information about visitors of senior standing, other than daily visitors, to the University. The information will be used for various purposes, for example, to enable Dr. Matheson to meet some of the visitors, to invite visitors to University functions and so on.

When firm arrangements have been made for a visitor to spend some time in your Department/Faculty, would you therefore please send to Mrs. J. Dawson, Personal Assistant to the Vice-Chancellor, a note of his name, normal appointment, Monash appointment if any, commencing and concluding dates of his visit, and indicate whether he will be accompanied by his wife.

It would be helpful to have a note now of any existing visitors to your Department/Faculty.

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MONASH GREAT HALL APPEAL

The Vice-Chancellor and Mrs. Matheson have kindly offered the use of their home for a series of concerts to be given in aid of the appeal, on the following dates:

Tuesday, June 9

An evening of Australian Aboriginal and Indonesian Music, presented by Professor Trevor Jones and the Department of Music.

Thursday, July 7

Soloists: Brian Hansford (Baritone)
 Margaret Schofield (Pianist)

Two more concerts are being planned for later in the year. In September a programme of early music with Bruce Knox and his group; and a concert in November, details of which will be announced later.

Seating is limited and the first concert in the series, on May 6, has already been oversubscribed. It is hoped that the remaining concerts will be just as well supported.

Coffee and claret will be served at the conclusion of the performances.

TICKETS \$2.50 ARE AVAILABLE FROM THE FOLLOWING:

Margaret Scott, 88 Sackville St., Kew (80-1484)
Margaret Johnson, 5 Frogmore Road, Murrumbidgee (56-3459)
Joan Street, 17 Howie St., Glen Iris (29-2396)

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HONORARY DEGREE FOR ALBERT MONK

The University has conferred a Doctorate of Laws Honoris Causa on the former President of the Australian Council of Trade Unions, Mr. Albert Monk.

At the Ceremony, held on April 17, Mr. Monk was presented by Professor J.E. Isaac. Excerpts from Professor Isaac's citation are published below :

I should like to read from an article which allegedly was pasted on the Staff Notice Board of a firm of ships' chandlers in 1852 :

1. Godliness, Cleanliness and Punctuality are the necessities of a good business.
2. On the recommendation of the Governor of this Colony, this firm has reduced the hours of work, and the Clerical Staff will now only have to be present between the hours of 7 a.m. and 6 p.m. on week-days. The Sabbath is for Worship, but should any Man-of-War or other vessel require victualling, the Clerical Staff will work on the Sabbath.
3. Daily Prayers will be held each morning in the Main Office. The Clerical Staff will be present.
4. Clothing must be of sober nature. The Clerical Staff will not disport Themselves in raiment of bright colours, nor will they wear hose, unless in good repair.
5. Overshoes and Top-Coats may not be worn in the Office but Neck Scarves and Head-wear may be worn in inclement weather.
6. A stove is provided for the benefit of the Clerical Staff. Coal and wood must be kept in the locker. It is recommended that each member of the Clerical Staff bring 4 pounds of coal, each day, during the cold weather.
7. No member of the Clerical Staff may leave the room without permission from Mr. Ryder. The calls of nature are permitted, and the Clerical Staff may use the garden below the second gate. This area must be kept in good order.
8. No talking is allowed during business hours.
9. The craving for tobacco, wines or spirits is a human weakness, and, as such, is forbidden to all members of the Clerical Staff.
10. Now that the hours of business have been drastically reduced, the partaking of food is allowed between 11.30 a.m. and noon, but work will not, on any account, cease.

11. Members of the Clerical Staff will provide their own pens. A new sharpener is available; on application, to Mr. Ryder.
12. Mr. Ryder will nominate a Senior Clerk to be responsible for the cleanliness of the Main Office and the Private Office, and all Boys and Juniors will report to him 40 minutes before Prayers, and will remain after closing hours for similar work. Brushes, Brooms, Scrubbers and Soap are provided by the Owners.
13. The New Increased Weekly Wages are as hereunder detailed:
 - Junior Boys (to 11 years) 1/4d.
 - Boys (to 14 years) 2/1d.
 - Juniors 4/8d.
 - Junior Clerks 8/7d.
 - Clerks 10/9d.
 - Senior Clerks (after 15 years with the Owners) 21/-d.

The owners hereby recognize the generosity of the new labour laws, but will expect a great rise in output of work to compensate for these near Utopian conditions.

I am told that this is not an authentic piece of history but that it was slipped into the industrial archives by an imaginative humorist. Nevertheless, it probably described fairly accurately the relationship in the 1850's between the employer and the worker, the master and the servant, as they were known in those days. We have progressed far since those days. Not only have wages, hours and general conditions of work improved beyond the wildest dreams of Mr. Ryder's wretched staff, but the worker has been accorded a status in keeping with his rights as a human being.

In Australia one of the signs of system, cohesion and stability in industrial relations has been Mr. Albert Monk's active presence for half a century in the highest councils of organized labour. In that time the labour movement has changed greatly, its fortunes have ebbed and flowed. Our governments, our social and industrial structures, our sense of community and international responsibilities have all altered profoundly; and each change

has called for some response on the part of working men and women and their industrial representatives.

Throughout most of this period, Mr. Monk remained at the head of the trade union movement and to many of us he has been the voice of organized labour for all our lives. His continued presence in the ever changing, tumultuous and sometimes acrimonious and confusing world of industrial relations is a significant reminder that it is an orderly world.

In 1927, at the first meeting of the A.C.T.U. Executive, Mr. Monk was present in an administrative capacity having had nearly ten years of service as a trade union official. Then followed the years of depression in the middle of which he was elected President of the A.C.T.U. He led organized labour in the difficult years of depression and later of war into the prosperous peace that followed. At the end of 1969, he presided for the last time over the same body which he had helped to create.

One would hesitate to select any of Mr. Monk's achievements as being his greatest. Perhaps they are all summed up in his qualities of leadership which are revealed in his organizational and negotiating skills, his sense of timing, his tact, his tenacity in matters he believed to be right - all this without drama or charisma. He has well earned the title "the gentle rebel". These qualities kept the labour movement united in difficult times and have won concessions and respect for the union point of view in government committees and employer organizations.

Outside his own country, and particularly at the International Labour Organization, Mr. Monk has left a lasting impression, an impression that

believes the numerical insignificance of the Australian workforce and the eccentricities of its industrial relations system. He was on the governing body of the I.L.O. from 1945 to 1969 and in his last year, he was elected Vice-President of the International Labour Conference on its 50th Anniversary. From 1951 to 1969 he was a member of the Executive Board of the International Confederation of Free Trade Unions.

It is in this sphere of international activity that best exemplified those qualities of Albert Monk which the whole nation has come to recognise and admire. In the Australian environment he has constantly reminded us of the rights and duties of labour, and that it is inevitable that labour must struggle for its rights against the employer. But in his international activities, Albert Monk's contribution has been to emphasize that humanity as a whole is engaged in a greater struggle which overrides the competing interests of employer and employees - the struggle to rise from the depth of poverty and ignorance to enlightened peace and prosperity.

And now Mr. Monk has retired to write the history of the organization he helped to build. It will also be the history of Albert Monk.

It is fitting that Monash University should acknowledge this man's work.

Mr. Chancellor, I present to you for admission to the degree of Doctor of Laws honoris causa - Albert Ernest Monk, Companion of the Order of St. Michael and St. George.

Other recipients of honorary degrees this year are:

- * Dr. Ursula Hoff, Curator of Prints and Drawings at the National Gallery of Victoria (D.Litt.);
- * Dr. Alan Walsh, Assistant Chief of the C.S.I.R.O. Division of Chemical Physics (D.Sc.);
- * Sir Walter Bassett (D.Eng.);
- * Professor R.N. Robertson, Master of University House, A.N.U. (D.Sc.); and
- * Mr. J.L. William, scientific instrument maker of Hughesdale (M.Sc.).

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UNIVERSITY OF EXETER POSTGRADUATE SCHOLARSHIPS

The University of Exeter offers a number of postgraduate scholarships of £480 a year, plus fees (£380 plus fees in the case of a student living at home with his parents), tenable from October 1970 by graduates holding good Honours degrees. Candidates who are about to sit final Honours examinations may also apply. The successful applicants will be expected to reside in Exeter during term and pursue full-time research or advanced study under supervision leading to a higher degree in Arts, Education, Law, Science, Applied Science or Social Studies.

Application forms, further particulars and prospectuses are obtainable from the Academic Registrar, The University of Exeter, Northcote House, The Queen's Drive, Exeter, to whom applications must be submitted by May 31, 1970. Please state the subject of study in all communications.

SOME THOUGHTS ON U.S. UNIVERSITIES

*The following is part of a study leave
report by Dr. Jean Youatt, Department
of Chemistry.*

The bulk of my time in the U.S.A. was spent with Dr. E. Nester in the Department of Microbiology, University of Washington. This work was primarily concerned with a possible role of transfer ribonucleic acid in the control of the biosynthesis of aromatic amino acids. This enabled me to acquire a number of new techniques and to learn something of this new and interesting area. I also spent about seven weeks with members of Dr. Brian McCarthy's group in the Department of Biochemistry to extend the experience of nucleic acid techniques to include ribosomal RNA and DNA.

In Seattle and in San Francisco I met scientists concerned with the organism *Allomyces* which is to be the subject of my new research here at Monash. I also enjoyed the opportunity to attend a small informal conference at Asilomar, California and had the opportunity to hear many visiting scientists at the University.

My most enjoyable experience (and perhaps in the long run my most profitable one) was to be accepted by the group of graduate students as one of them. As a result I had a rare opportunity to observe the relationships of academic staff and their graduate students. I found that most of the problems could have been avoided by the staff and I hope that this experience will make me a better helper of my own graduate students. An

interesting trend among the graduate students appeared to be a rejection of research by many who went through the training as an essential step to their desired objective which was to teach. This objective was, naturally, not divulged to the University staff since the students believed, correctly, that it would have resulted in their rejection from the graduate school.

The American University offered more in the way of warning than of examples which one might choose to follow. The undergraduate student is still appallingly neglected despite student protest and the attendant publicity. A special academic committee appointed by the President of the University of Washington reported that the undergraduate student complaints were justified. I realised from my undergraduate contact in Seattle that in our Australian system the Faculty is highly important to the student as a caretaker of his interest and as a court of appeal. A major grievance at a teach-in I attended was the grading system on which the students' futures depend and which is quite unforgivably casual.

The extensive use of computers for enrolling and arranging time-tables for students was of interest since I have been interested in these procedures at Monash. Quite predictably the use of computers aggravates the undergraduate sense of neglect. I found the undergraduates took longer to arrange their courses when computers were used than our students do at Monash, and they seemed to take it for granted that they would rarely be able to take the courses of their choice. For example, a student who worked part-time with me achieved her chosen course for the first time in the tenth term at the University and then the computer time-tabled lectures every day from 10 a.m. to 2 p.m. which completely prevented her from taking any part in student affairs. Basically, the enthus-

iaists for the use of computers do not realise the complexity of the situation or Universities are unwilling or unable to use computers and programs which are sufficiently complex to handle the work.

The extent to which the University finance depended on research grants to members of the academic staff came as a shock. This source supported not only the research and graduate training but also paid salaries of technical assistants, secretaries, cleaning and maintenance staff. There was no alternative source of support for the research of a member of the academic staff who lost a grant. This system is partly to blame for the neglect of the undergraduate. It is not conducive to sober self-assessment and is probably responsible for much of the synthetic enthusiasm which so repels the younger graduate students. In rejecting research as a career many of them are, I believe, rejecting this system.

These three aspects of the American University will, I hope, not become a part of the Australian University scene. Each one seriously detracts from the sense of a community of scholarship which we should like to attain.

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NEW TECHNIQUE TO INTRODUCE THE LIBRARY

One of the aspects of this year's Orientation Week programme was a video tape which gave students an "Introduction to the Main Library".

The video tape, prepared by the Audio Visual Aids Section, differed from those of previous years in that it was taped segment by segment. This technique was advantageous both to the talent and crew.



Discussing the script : (from left to right) D. Hauser, Production Supervisor;
G. Askew, Technical Supervisor; B. Southwell, Deputy Librarian

The talent profited from this arrangement because they did not have to record the entire programme without a break. It also allowed the technical crew to concentrate its efforts in one area and not be forced to spread the lights and

cameras over a large area.

The tape was electronically edited on a video tape machine, and the sound was dubbed in after the segments were edited together. Consequently, the tape took on a film-like quality.

Full-time students were not the only ones to benefit from the tape. This year, for the first time, replays were scheduled during the evenings. This gave part-time students an opportunity to view the video tape.

The script for the programme was written by the Deputy Librarian, Mr. Brian Southwell, and was produced by the Audio Visual Aids Section.

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OPEN DAY 1970

The University will hold its Open Day this year on Saturday, June 20. Mr. Peter O'Brien, of the Careers and Appointments Office, is once again the Director.

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THE REPORTER

Copy for the May issue will close on May 16. Copy should be addressed to the Editor, Monash Reporter, Vice-Chancellor's Office.

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TRIBUTE TO PROFESSOR ALEC KING

The University Council has identified itself with the following resolution in appreciation of the contribution made to the University by Professor Alec King who died in March.

Alec King came to Monash in 1966 after more than thirty years in the University of W.A. which he joined as a young lecturer in 1932. He reached the normal retirement age in 1969. It had been expected that he would continue in his chair for a further period but ill health made this impossible and he was forced to retire as Professor of English at the end of last year. He was then appointed a part-time Special Lecturer and as such remained a member of the department until his death on March 7. Though he was not able to teach at Monash in the later part of 1969, he kept closely in touch with his department and continued working at home. Indeed during the last few days of his life he recorded a typically personal and stimulating introductory lecture for first-year students.

He was an unusually gifted teacher with a wonderful capacity to share with others his own rich experience of literature, especially poetry. A man of wide culture, he was deeply interested in all the arts - music and painting just as much as literature - and his feeling for the creative arts as a vital expression of human experience governed his writing and teaching. His last book, "Wordsworth and the Artist's Vision", published just after his appointment to Monash, is wholly characteristic of the man in its freshness, penetration and above all the deeply imaginative nature of its response.

Yet nothing he printed quite fully captures

what the man himself was. He was a rare human being the fine quality of whose spirit sounded in the very tone of his voice. There was no pedantry or egotism. He cared about other people and was most generous in finding time to talk with students and colleagues. His nature was out-giving and everyone about him enjoyed his warmth and sympathy and responded to his complete integrity.

He was possibly not as widely known to the Monash University community at large as he had been in Western Australia. He was not by nature a committee man, though he willingly undertook such responsibilities as fell to his lot. And circumstances made it less easy for him than in earlier years to participate in activities such as music-making which he so valued. But in the few years he was with us he made an immense and quite special kind of contribution to the life and work of the department of English. When he left the University of Western Australia, one of his senior colleagues ended a tribute with words which cannot be bettered: "We shall have to get on without him but we should deceive ourselves if we thought him replaceable."

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CAREERS EXPERT TAKES UP NEW POST

A man who has influenced the careers of thousands of Victorian students has been appointed to a new post at the University.

He is Mr. Richard Belshaw, who has taken up the post of adviser to Prospective Students.

For the past 13 years he has been Chief Student Counsellor at the Royal Melbourne Institute of Technology where he started the Student Counselling Branch in 1957.

Before that he became one of the first full-time student counsellors at an Australian School with an appointment to Wesley College, Melbourne.

Mr. Belshaw, who lives in Malvern, is well-known as co-author of the book "The Key to Your Career", which has become a standard text in career guidance.

He was born in Belfast, North Ireland, emigrated to Australia as a young schoolteacher and then graduated Bachelor of Arts and Bachelor of Education with Honours from the University of Melbourne.

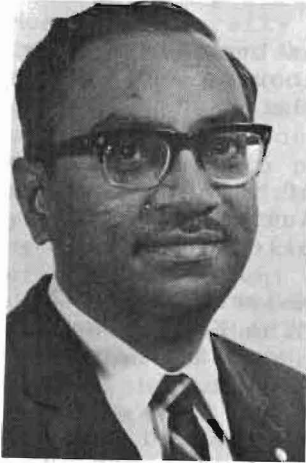
In his new post, Mr. Belshaw, as well as providing assistance for prospective University students, hopes to encourage more schools to appoint full-time student counsellors who will help bridge the gap between secondary and tertiary education and between school and employment.

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DEPARTMENTAL NEWS

Civil Engineering

Professor A.K. Rao, B.Sc., D.I.I.Sc., D.I.C., Ph.D. (London) is visiting the Civil Engineering Department as a Leverhulme Fellow from India.



Professor A.K. Rao

Institute of Science before obtaining a diploma in Aeronautics and a Ph.D. in Aerostructures from the Imperial College.

Dr. Rao is a Professor in Aeronautical Engineering at the Indian Institute of Science, Bangalore; previously he held positions with the Folland Aircraft Co. Ltd., U.K. (1957-59), Imperial College of Science and Technology, (1954-57) and the Civil Aviation Department, India (1951-54). He graduated with first class

Honours in Mechanical and Electrical Engineering from the Banaras Hindu University and obtained a post graduate diploma in Aeronautical Engineering from the Indian Institute of Science before obtaining a diploma in Aeronautics and a Ph.D. in Aerostructures from the Imperial College.

He is the Indian Coordinator for Structures of The Commonwealth Advisory Aeronautical Research Council, Member (Materials and Structures) of the Aeronautical Research Committee, India, Vice-President of the Aeronautical Society of India, Bangalore Division, Reviewer for the Applied Mechanics Reviews, Member of the Editorial Board of the International Journal of Numerical Methods in Engineering, and President of the Overseas

Science Students' Association, London.

His overseas visits have included the U.K. (1954-59), Australia (1966) and the U.S.A., Canada and Japan (1968). His fields of research are elasticity, structural fatigue, experimental stress analysis, matrix and finite element methods and aircraft design. Professor Rao has written more than 20 technical papers.

He is a member of the Rotary Club (Bangalore North) with special interest in vocational and international service; his hobby is photography.

Professor Rao is married with four children.

Two displays of a very different nature have helped to launch the academic year in the Department of Civil Engineering. The laboratory showcase houses a display devised by Mr. A. Holgate showing the relationship between the professional engineer in practice and the undergraduate course.

This display is in response to the well recognised need to inform the undergraduate on what a professional engineer actually does.

(Anglo-Saxon engineers look with envy on Continental "ingenieurs", who are etymologically associated with genius rather than with an oily rag.)

The second display is a photographic exhibition, "A Century of Concrete in Australia", loaned by the Cement and Concrete Association of Australia. It is interesting to note from this exhibition that Sir John Monash, before his career as a soldier and planner of the State Electricity Commission of Victoria, was a brilliant exponent of the then "new" art of reinforced concrete.

Classical Studies

This year the department is pleased to welcome as new members Mrs. Miriam Cherry and Mr. Brian Arkins.

Mrs. Cherry is a graduate of London University and is currently conducting research work in Linguistics. The title of her thesis is "The Article in Greek".

Mr. Arkins is a graduate of University College, Dublin, and is at present preparing a thesis for that college on "Sexuality in Catullus". Previously he lectured at University College, Cardiff.

Miss A. Romano has just returned from an overseas trip during which she visited many American universities. These included Howard University, Bryn Mawr College, Wheaton College and Harvard, where she conducted research work in the library.

German

The East German novelist, Stefan Heym, spent lunchtime and the afternoon at Monash on March 24. A reading from his forthcoming novel "The King David Report" led to a lively discussion. He also met informally with members of the German Department staff.

Professor Ulrich Fulleborn from the University of Erlangen-Nurnberg was a visitor to Monash during March, holding seminars and lectures with students of German literature and fellow Germanists.

Dr. David Roberts has returned from a year spent in Regensburg as a Humboldt Scholar working

on parody and the novel.

Mrs. Hedy Hurst, Senior Tutor, is on a study tour in Germany. She is spending a fortnight in East Germany as a guest of the organization "Neue Heimat", and hopes to visit secondary schools, teaching institutes, interpreters' courses and universities to study language laboratory techniques and teaching methods. She hopes to spend another month in West Germany, Austria and Switzerland.

Physics

We welcome Drs. Trevor Hicks and John Cashion to the Department on their appointment to lectureships. Dr. Hicks took his first degree at Melbourne and was awarded a Ph.D. in 1966 for his work in this department concerned with anti-ferromagnetism in manganese-palladium alloys.

He returns to us after holding a Research Fellowship at A.E.R.E. Harwell in England and a Consultantship at Oakridge National Laboratory, Tennessee, U.S.A. We congratulate him on his recent marriage.

Dr. Cashion also graduated from Melbourne, and then went to the Clarendon Laboratory in Oxford for his doctorate work on magnetic properties of rare-earth compounds at temperatures below 20° K.

Drs. Charlie Osborne and Paul Clark have joined us as Senior Teaching Fellows. Dr. Osborne, another Melbourne graduate, completed his Ph.D. thesis in 1966 in this department on the interaction of light with molecules, in particular with the nucleic acids. He was then appointed to a Research Fellowship at A.E.R.E. Harwell, working on the theory of magnetic effects in metals and insulators.

Dr. Clark, the only recent non-Australian appointee within the department, comes from the University of Exeter in England, where his doctoral work was concerned with Mossbauer studies of dilute magnetic alloys.

We said farewell to our Administrative Assistant, Trafford Price, at a lunch earlier this year. Trafford joined us in 1964 from the University of Adelaide as a Senior Teaching Fellow, and was subsequently appointed to the administrative position. We congratulate him on having recently successfully presented an M.Sc. thesis on antiferromagnetism in chromium, and wish him well in his new job on the lecturing staff of R.M.I.T.

Our new Administrative Assistant is Mrs. Jill Breaden, a Melbourne law graduate, who has returned to Australia after a three-year stay in London working in the Inland Revenue Division of the British Civil Service, and then in the Personnel Department of Rank-Xerox Limited.

The Department was pleased to receive Dr. K. Mendelssohn F.R.S. recently for a short visit while returning to the Clarendon Laboratory from an appointment as Royal Society Visiting Professor at the Tata Institute, Bombay. Dr. Mendelssohn, whose work on magnetic properties of solids at low temperatures has earned him world-wide fame, delivered an informative and amusing lecture on the low temperature properties of the actinide metals. He subsequently toured some of our laboratories in which work closely related to his own field is being carried out.

Finally, we congratulate Professor Street on his appointment to the Australian Research Grants Committee.

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ROYAL SOCIETY OF VICTORIA MEDAL

In its Centenary Year, 1959, the Royal Society of Victoria decided to institute a Medal for Scientific Research. The award consists of a silver medal, to be awarded annually for scientific research in one of the following categories:-

- A. Natural Sciences, - Agriculture, Botany, Forestry, Geology, Physiology, Zoology and related sciences.
- B. Physical Sciences - Astronomy, Chemistry, Engineering, Mathematics, Meteorology, Physics and related sciences.
- C. Social Sciences - Anthropology, Economics, Geography, Psychology, Sociology and related sciences.

The work shall have been carried out in Australia (including its territories) or on Australia, with preference for work done in Victoria, or on Victoria.

Scientific Societies, Universities, C.S.I.R.O. and members of the Royal Society of Victoria have the right to make nominations though the Council need not be limited by these nominations.

The ninth award will be made for work falling in "A" category this work to have been published during the six years from January 1, 1964 to December 31, 1969. Nominations should be in the Hon. Secretary's hands, 9 Victoria Street, Melbourne 3000, not later than September 1, 1970.

In the past years the Medal has been awarded to: Dr. G. Baker, Professor J.M. Cowley, Mr. D.J. Mulvaney, Dr. G.J.V. Nossal, Professor K.E. Bullen, Mr. E. D. Gill, Dr. A. Walsh.

GERMAN FILMS FOR ALL

By courtesy of the German Embassy, Canberra, the Department of German will be showing the following films this year:

1. *Rose Bernd* (After Gerhart Hauptmann). Details not known
Time : Friday, 5.6.1970 at 7.30 p.m., Lecture Theatre H.1.
2. *Dr. Mabuse. The Gambler* (1922), 109 min., black/white, silent, Engl. titles, background music.
Case : Rudolf Klein-Rogge, Alfred Abel, Bernhard Goetzke, Lil Dagover, Paul Richter.
Time : Friday, 19.6.1970 at 7.30 p.m., Lecture Theatre H.1.
3. *Dr. Mabuse -- Inferno* (1922), 99 min., black/white, silent, Engl. titles, background music.
Cast : Alfred Abel, Paul Richter, Gertrude Welcker, Lil Dagover, Adele Sandrock.
Time : Friday, 26.6.1970 at 7.30 p.m., Lecture Theatre H.1.
4. *The Royal Game* (Schachnovelle) (1960), 108 min., black/white, English.
Cast : Claire Bloom, Hansjorg Felmy, Curt Jurgens.
Time : Friday, 3.7.1970 at 7.30 p.m., Lecture Theatre H.1.
5. *Berlin. A Study in two Worlds* (1962), 43 min., colour, English.
Time : Friday, 7.8.1970 at 7.30 p.m., Lecture Theatre H.1.
6. *Confessions of the Swindler Felix Krull* (1954), 110 min., black/white, English.
Cast : Horst Buchholz, Liselotte Pulver, Ingrid Andree.
Time : Friday, 11.9.1970 at 7.30 p.m., Lecture Theatre H.1.
7. *Seelenwanderung* (1962), 77 min., black/white, German, English sub-titles.
Cast : Hanns Lothar, Wolfgang Reichmann, Karin Schlemmer.
Time : Friday, 9.10.1970 at 7.30 p.m., Lecture Theatre H.1.

No charge

All welcome

MONASH LIGHT OPERA COMPANY - 1970 PRODUCTION

Following their successful productions of "Salad Days" (1967); "1066 and All That" (1968); "Kiss Me Kate" (1969); the Company's production for this year at Monash will be "Where's Charley".

This is a light-hearted musical adapted from the stage play "Charley's Aunt". The setting is Oxford University in the early 1900s - music and lyrics by Frank Loesser.

Producer - Eve Godly
Place - Alexander Theatre
Dates - June 19-27. 8.00 p.m.

TICKETS will be on sale in the Alexander Theatre from May 1. Adults \$1.10, students 80¢.

Group concessions can be arranged.

Support Monash productions - bring your family and friends.

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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.

Wynne, Greville	The Man from Moscow. Pub. Hutchinson 1967. Illus.	\$2.50
Betjeman, John	Summoned by Bells. Pub. J. Murray 1960.	\$1.50
Hanoteau, Jean (Ed.) Trans. Miles	Memoirs of Gen. De Caulaincourt 1812-1813 (with Napoleon to Moscow). Pub. Cassell 1935.	\$1.50
	The Middle East 1957. A survey and directory of the Middle East. Pub. Europa Pubns. 5th Edn.	\$1.50
Kiefer, F.J. Trans. Garnham.	Legends of the Rhine, 5th Edn. Pub. Mayence. Illus.	\$1.00
Burgess, Alan	The Small Woman - story of Gladys Aylward. Pub. Evans Bros. 1959.	\$1.00
Yutang, Lin	The Wisdom of China - an anthology Pub. M. Joseph 1948.	\$1.00
Fulford, Roger	Votes for Women. Illus. Pub. R.U. & Faber 1958	\$0.80
Lytton, Lord	The Last of the Barons. Pub. Routledge 1843.	\$0.70
Burke, Edmund	Speeches on America. Pub. Uni. Tutorial Press, 1924.	\$0.70
Belloc, Hilaire	The River of London. Illus. Pub. Foulis, 1912.	\$0.70

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