

chosen to open this fine hall named after our father. It is a most appropriate memorial in this seat of learning.

"I will try now to give you a very brief sketch of his life and interests. He always rose early, commencing with prayer and meditation, followed by reading and writing, and then physical exercises and breakfast, after which he left for the city and his work.



Mrs Herbert Brookes unveiling the plaque at the ceremony for the opening of Deakin Hall

"He was a great home-lover. In his spare time at weekends he used to read aloud to us most of the best classics, and made them live. Mother and father both gave us a fine appreciation of the best in music, literature and art, and would draw our attention to lovely skies and trees and scenes in the hills and by the sea. Father's outdoor recreation was walking or cycling. In the holidays at his home at Pt. Lonsdale he did a lot of clearing of scrub and burning-off between writing and reading.

"He was ahead of his time as regards the education of girls and women, and in sports taught us hockey and cricket in our backyard.

"He was a wonderful father, husband, and son, and integrity was the basis of his thoughts and actions — may students passing through this hall feel the influence of such a man!

"I now have great pleasure in declaring Deakin Hall open."

## THE HARGRAVE LIBRARY

The Hargrave Library for physical sciences and engineering, but which served the needs of the whole University for its first two years, was officially opened by Sir Keith Hancock on December 15, 1962. Here is the text of Sir Keith's address:

"I think the concept of the library of Monash University is a fine one. It not only recognizes the convenience and the needs of specialist research and teaching through the institution of four collections which are called libraries, but it also recognizes the unity of knowledge, because these four libraries together constitute the LIBRARY of Monash University. Of these four collections one will belong to humanities and social sciences, one to biological and medical sciences, one to

law and this one to physical sciences and engineering.

"I think it shows a great spirit of imagination and adventure by the librarian, by his colleagues, by the Chancellor and Council of the University to have commissioned a creative artist to construct the mural which you will soon see, which I spent half an hour looking at and enjoying and admiring this morning. In detail Mr. Perceval's mural shows the greatest technical skill. It also has the grandeur of an adventurous conception. It is indeed an original work of art. And I think the Council has also shown imagination in inviting not a scientist, but a humanist to open a building devoted primarily to physical sciences and engineering. I hasten to say that the Council has also taken a great risk, because nobody could be so totally incompetent as I am in engineering matters. I am certain that when I pull this string I will pull the wrong string. There is sure to be some hideous error. I remember when I was a small boy a hideous error made by the curate of my father's church in Gippsland. It so happened that we were opening a new parish hall on Hospital Sunday, which people in Gippsland used to call Egg Sunday because they gave not only money but eggs; and the curate gave out the notice: "Next Sunday is Egg Sunday; the Archbishop will lay the foundation stone". Well! Mr. Ernest Clark, your librarian, who has briefed me on my duties, has told me that I have to cackle. He has said that I ought to cackle for half an hour or so; but I couldn't rise to that and I'm certain that you wouldn't survive it.

"I shall try not to take up too much time; but I do want to say something about Lawrence Hargrave, after whom this building is named. I have spent the last few weeks reading scientific papers which he wrote for the Royal Society of New South Wales, and reading everything about him that I could lay my hands on, and talking to some of my colleagues who could explain his work to me. At first I was sceptical about him. This, I think, was my reaction to some popular exaggerations of his achievement. One or two people told me — 'O yes, Lawrence Hargrave, he was the inventor of the aeroplane'. Well, of course, that is claiming too much. Actually his conception of the aeroplane was the same as Leonardo da Vinci's. He conceived the flying machine of the near future as something with wings — that would flap its wings and fly like a bird. And that has proved, of course, to be off the track.

"Yet in two most important central problems of flight, as I discovered before long, Lawrence Hargrave was right on the track. First of all the problem of lift. He designed a cellular kite, what as a boy I should perhaps have called a box kite, and designed it so soundly that it was able to lift a man, or the weight of a man, into the air. He published an account of this in the *Journal of the Royal Society of New South Wales*. Part of his article was republished straight away in a London engineering journal and people in Harvard immediately got interested. This was in 1894, and almost straight away the American observatories began to design these sort of kites and use them for the purposes of meteorological observation. And after that followed gliders, precisely on the Hargrave principle, and then later came early air frames which again were on the same principle.

"The other problem in which he was right on the track was the problem of propulsion. It has been said quite often that Leonardo's aeroplane might have flown if he could have got the motive power to make it fly.



Perhaps that could not have been achieved, anyway, before the age of the internal combustion engine. Be this as it may, in 1899 Hargrave designed a rotary engine. That is the sort of engine, I understand, in which the crankshaft doesn't move but in which the cylinder moves with the propeller wings. And this engine anticipated, by about ten years, the Neme and other famous engines which were used in the pioneer days of flying.

"But Hargrave never patented any of his inventions. He had a theory which today would be thought quixotic — he believed that those who discover things and those who invent things should not make personal profit from their discoveries and inventions; but that these should be shared, without any payment, among the whole community of mankind. If he had patented his inventions, his name perhaps might figure today more prominently than it does in the histories of technology.

"This decision of his not to take out patents underlines one of his great qualities as a scientist and as a man, his unselfishness. Another of his great qualities was persistence. For year after year he worked patiently and with beautiful craftsmanship. All his models were most beautifully finished. He never produced a model or drawing that was sloppy or slapdash. Still another of his qualities as a scientist and as a man was his imagination, his spirit of adventure. He had shown it in his twenties, when he went exploring, playing quite an important part in the history of exploration of New Guinea. And he showed it in his middle and late years after his retirement. Of course, people called him a crank — the sort of people whose eyes are glued to the ground, while his eye was fixed upon the horizon. He did nearly all his creative work after his retirement, from Sydney Observatory. There may be a moral in

this for you, those of you with grey hair (but I look about and I see very few grey-haired people here) to think that you can do your best work after your retirement. Certainly I see a moral in this for myself.

"Well, in choosing the name of Lawrence Hargrave, Monash has committed itself to building a great collection of literature in the physical sciences and engineering. I don't doubt that it will feel equally committed to building great collections in the other units of the library — that it will feel committed to building a great LIBRARY. So I want to ask, in what does greatness consist? What is it that makes a university library, like the Bodleian, or Princeton, or Harvard, great? And the answer is first: quantity. You can't have a great library that is not also a very large library. There are over a score of university libraries in America which have over a million books — many millions, some of them. But in Australia there is only one university library, the Fisher Library in Sydney, which is approaching the million mark. I know to my cost, and through my colleagues, that there are not enough books in Australia in university libraries, or for that matter in public libraries. Australia is a rich country which is choosing to be poor in books. That is an inglorious choice. I think it is also a dangerous choice.

"However, it is not only numbers and quantity that make a great library; quality counts. The Lawrence Hargrave collection is for physicists and engineers; but I should like to say that a library is not something which can be engineered. Its growth has an organic quality. It grows, I believe, round the personality and wisdom of its librarian. It grows in response to the real demands of the university people who are teaching the young and are pursuing research. It grows. You have grown here. Mr. Clark has told me that your library began

*The Hargrave Library for the physical sciences and engineering*





in a bedroom of the Vice-Chancellor's house. Then it outgrew the bedroom and began to grow further in the gardener's cottage. Then it grew in a warehouse of the Volkswagen factory and then somewhere else, and now in this building still serving the needs of all faculties. But we know that it will soon burst through this building; perhaps by next July another building will exist. May this growth come quickly.

"By sometime next year this building will no longer serve the needs of all faculties. It will then begin its permanent career as a servant of the needs of physicists and engineers. I have been asking myself a question I can't really answer, though I can speculate about it — what kind of collection would Lawrence Hargrave like to see in the building which has been named after him? One of his criteria, I feel certain, would be utility. The collection must be useful; it must contain everything that physicists and engineers need for their own research and need for their teaching. It must contain journals, past series and current numbers, complete series, not only by the hundred, but perhaps by the thousand. It must contain all the modern text books. It must contain masses of things, xerographic material, copies made by modern processes of printed works that cannot be obtained in the original. But if that was the end of it all, this building would be a dismal place. Mere utility is such a forbidding thing; it dries up the sources of research itself. A library must exist not only for utility but also for inspiration.

"I think your conception is a very fine one, but it has its dangers. Don't forget that the Lawrence Hargrave Library is one which, with three others, belongs to the LIBRARY of Monash University. It would be very dangerous if each of these four units became sovereign and independent in itself. Many of us have read what C. P. Snow has written about the two cultures. We reach 'the self-destruction of our civilization', he argues, when communication breaks down between science and the humanities. Actually, I think he is too pessimistic. In my experience many lines of communication are open both between the different sciences (which can be dangerously isolated from each other) and also between the sciences and the humanities. All the same, Snow gives us a timely warning. Think how appalling it would be if Monash University let its library buildings symbolize not merely two cultures, but four cultures, with communications completely broken between each and all of the four!

"That's only a theoretical danger. It is quite contrary to the policy which is being pursued here; it won't happen. It would be treachery to Lawrence Hargrave to let it happen. He would wish the building that bears his name to exist not only for utility but also for inspiration. The people working here, the scientists and engineers, will want first of all to see their work in perspective, to see it in relation to the whole culture and civilization out of which it has grown. They will want to see it, for example, in relation to mathematics, which is the essential language of all the sciences. I expect there will be here a strong mathematics section. They will want to see it in relation to the philosophy of science, and to see that in turn in relation to the history of philosophy, in which the concepts of science have their root. I should also think that the users of this library, or at least some of them, will be interested in social and economic applications. I hope you will bear this in mind and will reserve at least a little shelf space

for economic and social questions.

"Many of the readers here may want to see their work in its connections with literature. I think, if I may suggest it to Mr. Clark, that it would be a splendid thing to have a few shelves on which there would be, for example, the novels of Fred Hoyle, who writes so entertainingly in fiction about the astronomical world which it is his professional business to explore. And the novels of H. G. Wells, C. P. Snow, and others, as well as the poetry, let us say, of Lucretius and Kathleen Raine. Then people will not only rush to get their periodicals and text books; they will also wander about the shelves, take down this book and that, browse and borrow. Perhaps they may be moved sometimes to walk into the biological library, so that their communications are not broken with their biological brethren; or into the general library. They may even get into the habit again of buying books.

"The LIBRARY, I feel certain, and not least the Lawrence Hargrave collection, is going to achieve greatness within a great University. Now it is time for me to attempt this difficult task of technology and in doing so to declare this building formally open'.

## MEDICAL SCHOOL

Noted Australian scientist Sir Macfarlane Burnet opened the first stage of the medical school at Monash on April 27, 1963. In his address to the audience Sir Macfarlane stated:

"I am greatly honoured by the privilege of speaking on this occasion of the formal opening of what I believe can and will become one of the great medical schools of the world.

"My qualifications for the task are seriously limited. Essentially I am an experimental biologist with a medical degree. I have spent most of my life in the ivory tower of research and if that, on the one hand, leaves me with some sense of guilt of having evaded responsibilities, it has also given me a privileged vantage point from which to look at medical teaching and medical practice as one deeply interested but uninvolved.

"I have had to think hard to sort out from all the things which might be said on such an occasion as this, those which seem most important or most seemly for me to say. Today's function is one above all that calls for hope and confidence in the future. Those who have initiated this University and this medical school have done well and the faculty combines achievement and promise as a young faculty should.

"Ahead of Monash I can see a long succession of achievements in the advance of knowledge, the improvement of medical care and the maintenance of scholarly ideals. Perhaps it is presumptuous for me to speak in this company of the ideals that I believe should guide medicine today and of the dangers that spring from the way medical science has developed in the present century. But this is a unique occasion: it is more than one hundred years since a medical school was opened in Melbourne, so that is what I have chosen to do.

"I want to talk about the future of Monash medical school and I can only do that in terms of how I see the future, not only of medical practice and research but also of scholarship and education generally. My