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THE PROFESSIONAL ENGINEER

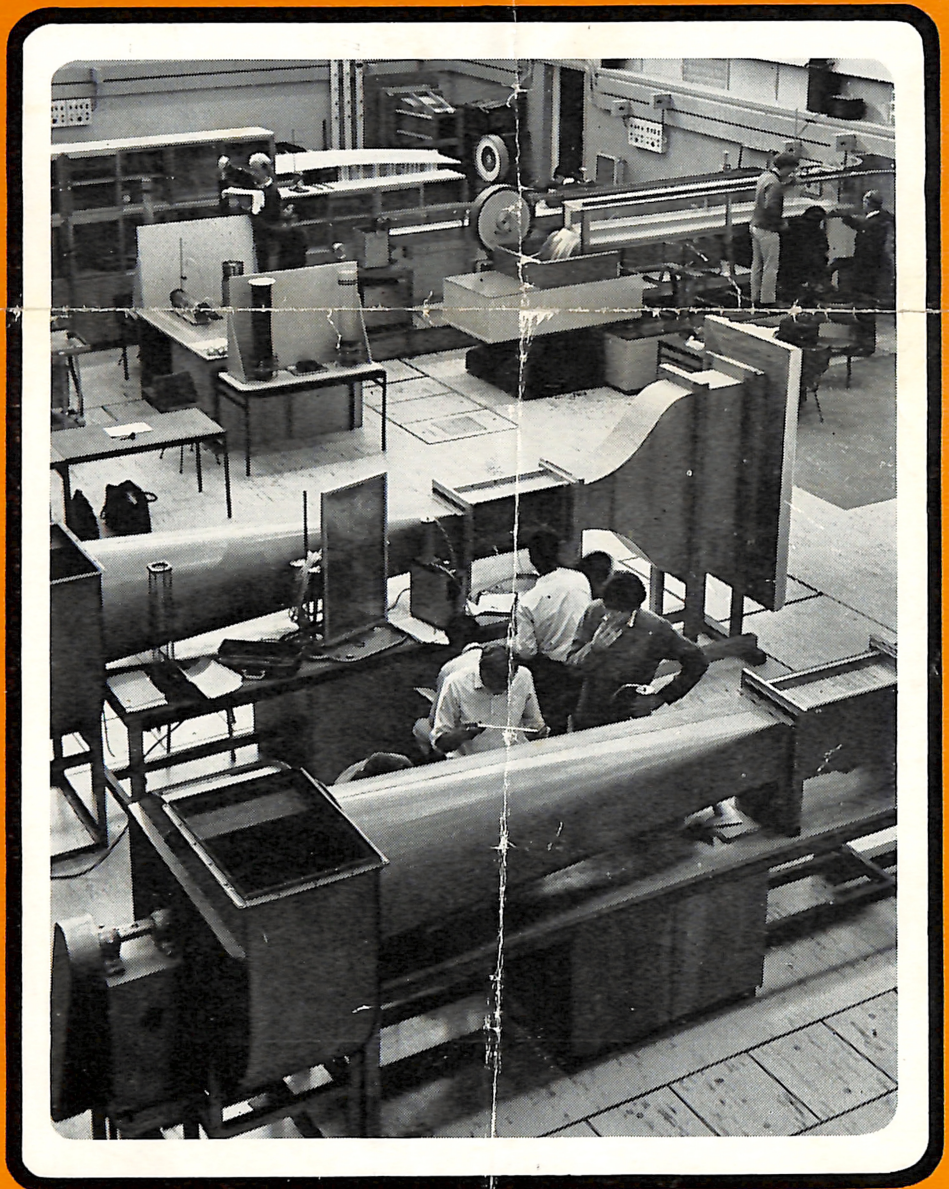
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**Special
Issue:**

ENGINEERING EDUCATION

Students at Monash University
School of Engineering working
on the wind-tunnel area of the
fluid mechanics laboratory.

Photo: Wolfgang Sievers



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Professor J. J. Auchmuty provides the foreword to this special education issue of *The Professional Engineer* . . .

POST-GRADUATE STUDY IS NECESSARY FOR ENGINEERS

IT WAS BECOMING increasingly necessary for engineers to attend post-graduate or refresher courses at regular intervals, Professor J. J. Auchmuty told graduating students at Sydney University this year. And it would become increasingly necessary for universities to provide these courses.

Professor Auchmuty, Vice-Chancellor of the University of Newcastle, said that in the fields of science and technology the world was changing so fast it was impossible for any engineer or scientist to be consistently up-to-date.

"Historically, the ideal epitaph for a scholar was 'He died learning,'" he said. "Today it is essential for the professional man that he should live learning."

Professor Auchmuty went on:

It is a peculiarity of our contemporary civilisation that our engineers are much concerned with status.

Engineering status is highest in Russia where, as many of you know, the President of the Soviet Academy of Sciences

is an engineer, as also is the Prime Minister. It would be as difficult to believe in one possibility as in the other here in Australia.

The Russians ensure a steady flow of proved ability into the engineering profession by the use of differential salaries, the highest, some of you will hear with regret, going to chemical engineers. But even in Russia salary and prestige have their appeal not merely to high ability but to high ability in either sex — so that some 40% of Russian engineers are women — some occupying the highest and most responsible positions.

It is a reflection of the Australian scene that so much female talent is wasted in our archaic social system.

There is nothing to prevent a woman becoming a very good engineer . . .

The qualities today most sought after in an engineer are all mental: A sound knowledge of the sciences and of mathematics to provide basic theories for engineer design processes; the ability to attack new problems; an alert imagination with a capacity for self-expression and some capacity in the writing of reports and specifications.

Today the average successful engineer by the time he reaches middle life is primarily a manager rather than a basic practitioner: he is as concerned with work flow, competitive efficiency, quality control and accurate costing as he is with engineering problems. In any case the solutions to these problems are no longer those he learned at the university, so that he is compelled not merely to develop new administrative but also new engineering skills and, as I have stressed earlier, requires regular attendance at refresher courses if he is to keep up-to-date.

In this country, as in the world as a whole, we are seriously short of qualified engineers; we are even more limited in our supply of those with a high degree of managerial skill.

If I am delighted to see so many graduating today and to know that throughout the Commonwealth there has been a general upsurge of numbers in our engineering faculties, I would still wish to encourage many more to enter a profession which can bring great rewards of achievement and which is fundamental to the maintenance of our rising standards of living the world over.

BOOK REVIEW:

PROFESSIONAL ENGINEER
JUN 1966

The Puzzle of Architecture

by ROBIN BOYD

ANY ENGINEER wishing to understand something of architects and their work must read this book.

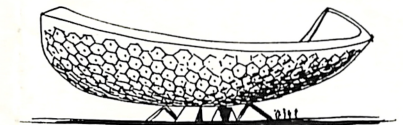
Robin Boyd has presented a masterly description of the conflicts in the minds of architects as they struggle to reconcile their concepts of architecture as an expressive art with their responsibility to satisfy the practical requirements of their clients. It is probable that many architects would themselves not have recognised the puzzles that are set out so clearly by the author; some solutions are offered but a strong impression is given that major problems face the architect of the present, and the future, in the explosively accelerating shape race.

In this book the author is more concerned with the style rather than with the other aspects of architectural design but this does not completely dominate his theme. He demonstrates a thorough grasp of structural mechanics and his discussion on the taste involved in the intuitive assessment of the correctness of structural form and his descriptions of the action

of structures by Saareinen and Irwin will bring enlightenment to many structural designers. All these points are delightfully illustrated with sketches which are themselves perfect examples of the author's command of artistic expression.

The developments of architecture in the 20th century are traced from the revolution which swept away the accumulation of ornament to the clean uncluttered lines of the functional glass box of the 1950s. At this stage it almost appeared as if there was little for the architect to do but conform to this precise form.

A counter revolution has, however, occurred in which the architect has striven to create a form of artistic expression on the one hand through the reintroduction of ornament and on the other by the use of curved forms. Roofs in particular featured in this revolution and the infinite variety of shapes made possible by the use of shells has developed through the partnership of architects and engineers. A further stage is identified in the de-



New shapes of the fifties

sire for unification and control of the whole system with the reconciliation of the art and the reality of building.

In a long concluding chapter the future possibilities and the qualities necessary in architects for their fulfilment are discussed. Careful reading will be well repaid in this section, but, for the impatient, the author summarises his answers to the puzzle in one final succinct paragraph.

—L. K. Stevens

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