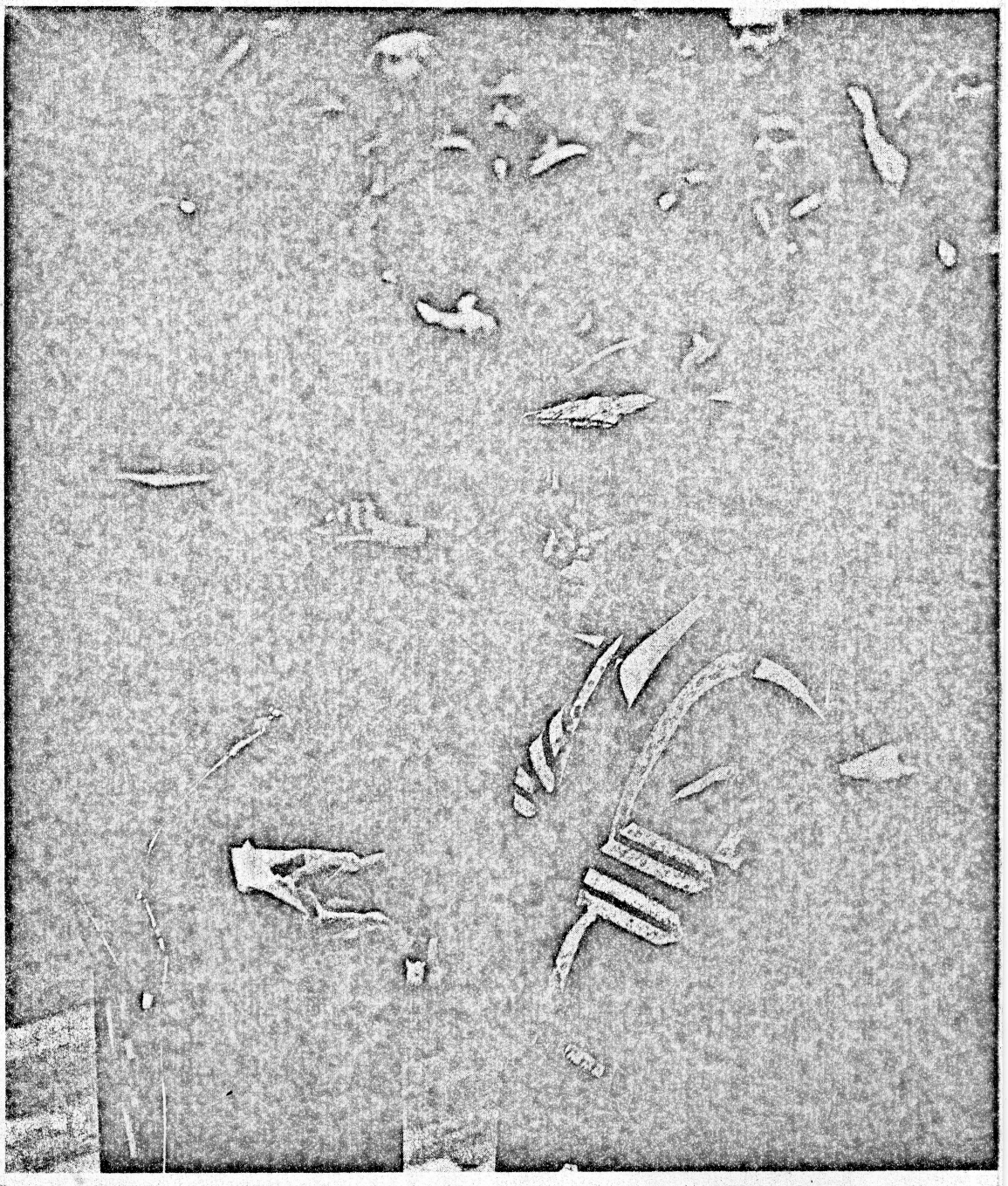
Speeches

DIPLOMA DAY



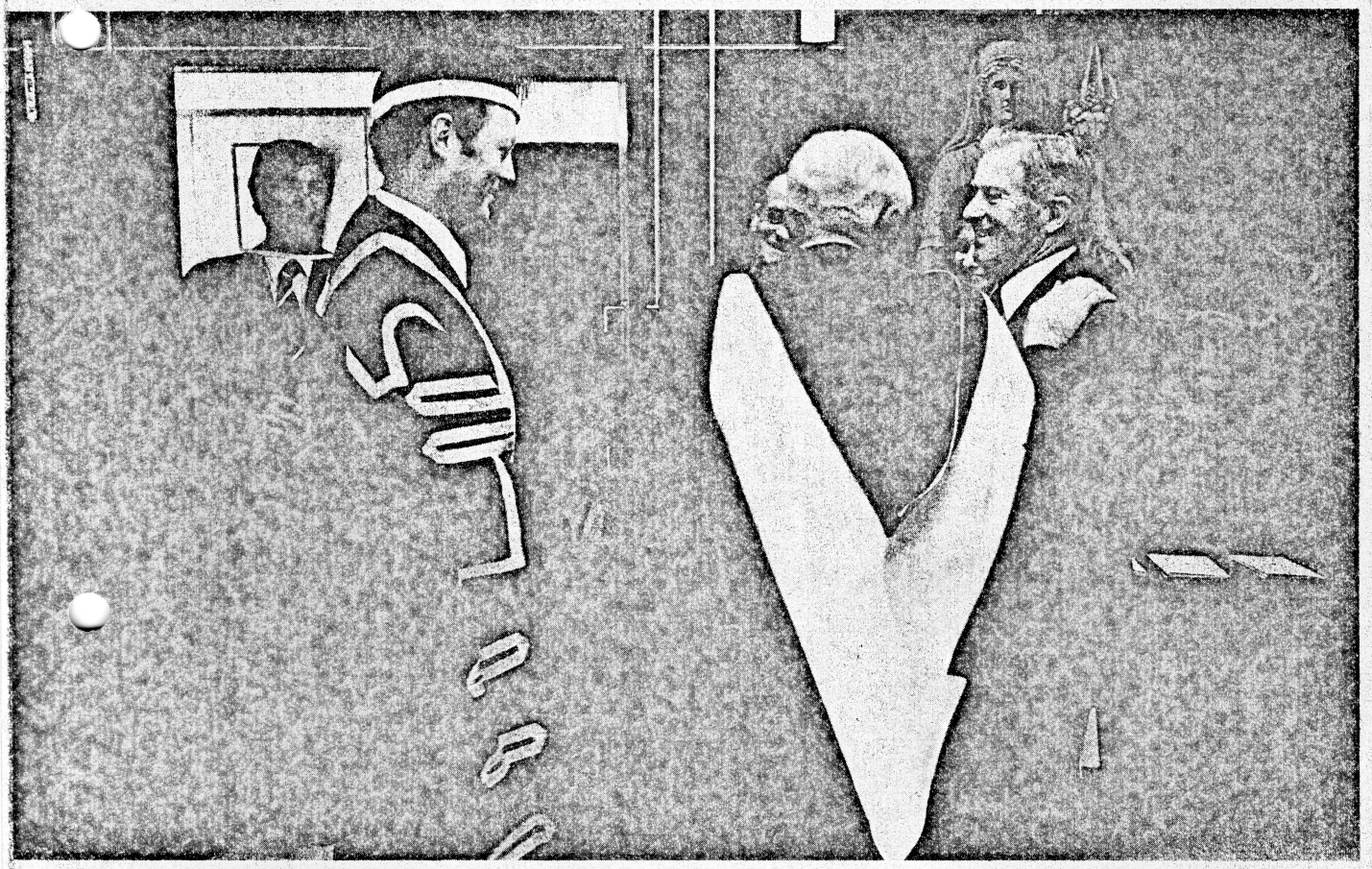
Vice-Chancellor and Principal of Rhodes University, Professor D.S. Henderson, addressed the 1978 assembly of the Port Elizabeth College for Advanced Technical Education.

Mr Chairman of Council, Mr Director, Diplomates, Ladies and Gentlemen, My first and pleasant task is to congratulate you, the diplomates, on achieving this important milestone in your lives that we are celebrating this morning. It is indeed fitting that parents and friends, but especially parents, are here to witness you receiving your diplomas. It is a proud moment for you to see your efforts publicly acknowledged. Your qualification is also valued by your employers, who see in it evidence of a certain certified level of knowledge, and competence, and, even more

importantly, proof positive that you have the strength of character to bring a difficult and sustained task to completion. In the excitement of the occasion and in the glow of successful attainment, I ask you to pause for a moment to give a thought of silent thanksgiving to your parents, whether present or absent, whose support, concern and encouragement have enabled you to reach this goal.

I feel particularly honoured to be representing Rhodes University on this occasion. Our sister University, UPE, being sited so close to you, cannot fail to be aware of your presence, and vice versa. Tucked away as we are in Grahamstown, we tend not to apply our minds overmuch to CATES, and no doubt we tend not to be uppermost in your thoughts either. I hope that in the future this situation will be remedied, and that we shall tend to forge stronger links as we explore ways and means of closer cooperation.

It is a commonplace, rendered the more sanctioned through reference to it in the van Wyk de Vries Commission Report, that fundamental knowledge is the proper concern of the Universities, whereas the CATES attempt to prepare their products to apply useful and tested ideas, especially in the scientific and technological sphere, in the immediate workaday situation. Most of my working life I have been concerned mainly with the application of mathematical ideas in an essentially very practical field, that of computers. I know therefore from direct personal experience the challenge and the difficulty of the imaginative application of theoretical ideas to practical problems. It can be every bit as demanding in intelligence, knowledge and character as the development and extension of the basic theoretical framework.



The Director shares a joke with Professor Henderson and Council Members.

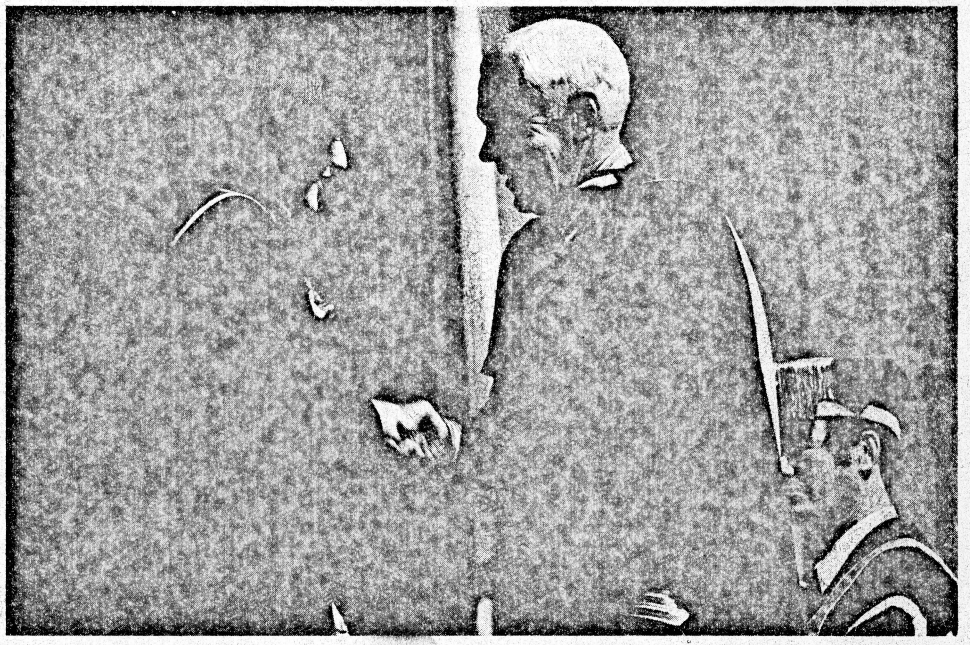
As with the human body the apparatus of tertiary education is made up of several members, the Universities, the CATES, the Teacher Training Colleges and a whole host of other professional and semi-Professional training institutions. It is a foolish attitude to accord greater importance or prestige to one section, to the exclusion of the others. We all have an important and vital role to play, and it is a task of prime importance to insure that there is proper harmony, balance and proportion amongst the various sectors of post secondary education. At the moment I do not believe that such can be said of our South African situation. We have sixteen universities against only six CATES. In fact almost 80% of the enrolment at non-correspondence tertiary institutions is to be found at the residential universities. To my mind this is a most unhealthy imbalance. Very largely because of artificial questions of prestige far too many students, many of them not particularly suited to it, are enrolling at the universities, and certainly not enough at the CATES.

The solution will not be an easy one, but the main outlines are clear. Tertiary education should be looked at as a whole, and the resources available should be apportioned according to the real needs of the country. Universities and CATES must

grow into the habit of cooperating more closely, and come to understand in more detail what their complementary, and not competitive, roles entail. In this respect I was most impressed to read from the address, delivered on a similar occasion in 1976, of my colleague Professor E. J. Marais, Rector of UPE, of the proposal for a conjoint committee for UPE and this CATE. Such a degree of cooperation between Rhodes and the CATE might also serve a useful purpose, in view of our common interest in areas such as Pharmacy, Commerce and Art.

I say this in no spirit of expansionism or desire to compete with our sister university. Indeed in our present economic circumstances, no university can possibly be in the mood for any expansionistic ventures. I should like to go further, and state that if any conjoint committee between Rhodes and the P E CATE were to be considered, it would be wiser for the initiative to come from this institution, precisely to forestall the imputation of wrong motives to Rhodes. It is important for me to place on record, however, that such an initiative would receive a sympathetic reception from the university I represent.

Let us give consideration for a moment to what type of expanded role the CATES might play in our system of education. In sharing with you some thoughts I should like to state at the outset that I am much influenced by what I have seen of the United States system of Community Colleges, which are a very flourishing set of institutions. A typical example is Miami — Dade Community College in Florida, which I was privileged to visit in the company of a party of European professors a number of years ago. It is a very imposing institution, with an enrolment of well over 10 000 students. right at the beginning of the tour our guide emphasised to us with great



Mr. van der Merwe congratulates a diplomate.

pride that "we aim to make our graduates useful to their employers on day one". My initial reaction to this statement was less than enthusiastic, since I was aware, with the enormous rate of technological development, how ephemeral that type of training was apt to be. My reservations, however, were considerably reduced as I came to understand more fully the role played by these institutions.

Most of their programmes extended over two years of fulltime study, or the equivalent spread over a more extended period in the case of part-time or sandwich-type courses. The place was a hive of activity from early morning to late evening, with a good balance between full and part-time students. The students came from a great variety of backgrounds. Some had come direct from school, some had worked for a number of years, while a surprisingly large number were in their thirties and forties or even older. The spectrum of courses offered was amazingly varied, from the very practical courses specifically tailored to one aspect of a particular occupation or industry to a large number for which university recognition was specifically offered.

In fact, a significant portion of the students went on to universities upon completion of their two years of study, with full credit being granted for all, or nearly all of their work. The majority, however, were seeking a qualification that would enable them to improve their prospects in commerce or industry. A very strong emphasis had also been placed on adult, or continuing education. Students were encouraged to return, after a number of years in jobs to update their qualifications and knowledge, or even to prepare themselves for an entirely new career. In fact many people with university degrees tended to make use of the Community College for just this purpose. Hence the presence of so many more mature people. In this way people who were making slow progress in fields where there was an oversupply of qualified people could move into fields where shortages were being felt.

There are three factors that are particularly worthy of note, and possible emulation, in the modus operandi of these American Community Colleges. The first is the considerable two-way traffic between colleges and universities, to the benefit of both types of institutions. The second is their responsiveness to the real needs of the community, and the third is the great flexibility of that response. New courses are added as soon as the need is apparent, the need not only of the employers for trained personnel, but also the needs of the employee for extended training or even complete retraining where necessary. This surely is the correct response to to-day's rapid rate of change, which threatens to divert so many of us into stagnant backwaters if we succumb to the delusion that education is complete as soon as the ink on our degree or diploma certificates is dry.

Many of the facets of this American system have a clear message for us in South Africa. Life in South Africa, as we are so frequently reminded, has a greater dimensional complexity than that of the USA, and therefore the good features of their system cannot merely be taken over without careful study and adaptation. This very complexity of life in our multi-racial dispensation in South Africa provides the CATES with a unique opportunity and a unique challenge.

It is common cause that we are long past the point in South Africa at which, with a highly developed modern economy, all the skilled labour required to serve the needs of a population of 25 million can continue to be drawn from the White population alone, with a numeric strength of only four million. Shortages of skill are somewhat masked at the moment by the depressed state of the economy, yet even in these circumstances unemployment amongst the White, Coloured and Indian population groups stands at very low levels. As soon as the upswing comes, and there are welcome indications that it will not be long delayed, critical shortages of the technical skills that are offered by the CATES will immediately become apparent, and will represent the major stumbling block in the way of further accelerated development. It is my earnest hope, therefore, that the PE CATE, building on the fine beginning it has already made, will admit as many qualified candidates as it can accommodate from all racial groups to contribute as rapidly as possible to the pool of skilled personpower that is surely one of the top priorities for a peaceful and prosperous future for us all in South Africa.

The all-pervading presence of technology in our lives, and its bewildering and accelerating rate of change, are what lies at the root of the importance of the CATES in our educational system. Unfortunately, as we all know, there are some regrettable side-effects of what until very recent years we had all come to look upon as a benign goddess, when pollution, both of air and water, or the disruption caused to whole communities by the presence of a very busy airport or an eight-lane freeway, first became obtrusive we were inclined to dismiss what seemed to be minor irritations with a light-hearted comment such as "Oh, that's progress". Less apparent, but equally insidious was the violence done to our aesthetic senses by the march of thoughtlessly applied technology. We have come to accept without sufficient protest the jumble of overhead wires in our cities, the ugly mining or roadbuilding scars in our countryside or the damage oilspills have done to our beaches.

In Europe or North America, with their higher level of development and greater population densities these problems have long since past the point of being minor irritants and have become major hazards to life and limb. The infamous London fog of 1951 in which over 4 000 people died of pulmonary complaints was the turning point which finally roused the British people from their complacency. To-day London has cleaner air certainly than Johannesburg, and probably than Port Elizabeth.

One popular reaction, understandably enough, was to blame technology itself for all these ills. It was argued that we should free ourselves from our almost total dependence on complex certralised technologies and return to smaller, simpler communities based essentially on slightly modernised 19th Century low-energy, low complexity technology. Phrases like "small is beautiful", "the alternative society" or "the greening of America" flowed very easily from people's lips. Small groups of people actually practised what they preached, and went off to live the simple life in a shack in the woods. Many of these earnest young people, however, continued to use their motor cars, had telephones and electricity in their homes or went off to revivalist type conferences in jet airplanes, without consciously realising the incongruity of denouncing technology while continuing to enjoy its benefits.

Nonetheless, they had made their point, a very important one, that no longer can we allow technology to run wild, with no thought as to its consequences beyond the primary purpose for which we were employing it. Their solution of banning technology itself is the classical one of throwing the baby out with the bathwater. The ills of technology can only be cured by a more intelligent and caring application of technology itself. The solution to our energy crisis, to the pollution of our air, rivers and sea or to the general and unlooked-for violence that careless applications of our beloved machines, lies in further scientific investigations and a more careful application of the results. No longer can the designer simply concern himself with the single question of making his machine or factory work at maximum efficiency. He must become a more sensitive human being, with a deep understanding of man's need for beauty, a harmonious social order and a delicate balance with nature as well as for the comfort and utility which our machine culture undoubtedly provides.

This then is the great challenge. We must tame and humanise, and not only exploit our great inventiveness and our facility with machines. The honeymoon phase of infatuation with our own inventions is over, and we enter into the phase of learning to live for the long haul with all our marvellous creations. It is a challenge which none of you young people about to embark on the exciting venture of your careers can escape. I am sure that none of you will wish to avoid that challenge. It is your task to bring under control and humanise the untidy, undisciplined but always exciting jet and computer-age world which we the older generation have bequeathed to you. As I look about me this morning I have no doubt that you will make a better job of it than we did.

Past chairmen of the Students' Representative Council with the Director, Mr. S.D. van der Merwe. Middle: Etienne Hendricks, 1976. Right: Frans Schutte, 1977. Left: David Jones, 1978.

DEREK SCOTT HENDERSON

b Durban 1929

Education	:	St Johns College, Johannesburg. Matriculated, five distinctions, head boy 1945, 1946 Rhodes University. B.Sc distinctions in Mathematics, Applied Mathematics, Physics 1948 Lincoln College, Oxford. B A Hons, School of Mathematics in the First Class 1951 M A 1955 St Johns College, Cambridge. B A Hons, Logic Section Moral Sciences Tripos, Class II (1) 1953 M A 1957 Harvard University. Ph D in Applied Mathematics 1960
Scholarships	:	Primary, Secondary, Rhodes University, Rhodes Scholarship, Harvard University: Gordon McKay Fellowship, Standard Oil of Ohio Postgraduate Fellowship, Bell Telephone Laboratories, Predoctoral Fellowship
Positions Held	:	Private secretary to Mr Harry Oppenheimer 1956, Lecturer in Mathematics University of the Witwatersrand 1957, IBM Corp Poughkeepsie-member of Architecture team that designed the prototype of the IBM 360, 1962, Senior lecturer-in-charge and Director Computing Centre University of the Witwatersrand 1968, (First Professor 1967), Professor of Computer Science and Head, Department of Applied Mathematics 1970, Dean, Faculty of Science University of the Witwatersrand 1975, Vice-Chancellor and Principal, Rhodes University, Grahamstown.
Research Interest	:	Fast WATFOR-type Compilers and time showing systems
Publications	:	Fifteen major publications on aspects of computer science