

V.C.

RHODES UNIVERSITY

GRADUATION ADDRESS - SATURDAY 8 APRIL 1978

MR CHANCELLOR, RESPECTED COLLEAGUES, GRADUANDS, LADIES AND GENTLEMEN,

MY FIRST PLEASANT DUTY IS TO EXTEND TO YOU ALL ON BEHALF OF THE UNIVERSITY A VERY WARM WELCOME, MORE PARTICULARLY TO THE GRADUANDS IN THE FACULTIES OF SCIENCE, LAW, COMMERCE AND SOCIAL SCIENCE, TOGETHER WITH YOUR PARENTS, FRIENDS AND WELL-WISHERS. FOR YOU, THE GRADUANDS, THIS OCCASION IS THE VISIBLE CULMINATION OF THREE, FOUR OR FIVE YEARS OF YOUR CAREER AT RHODES. IT DIFFERS FROM SIMILAR FUNCTIONS AT MOST OTHER SOUTH AFRICAN UNIVERSITIES, WHERE UP TO 85% OF ALUMNI MAY LIVE AND WORK WITHIN 50 KILOMETERS OF THEIR UNIVERSITY, IN THAT MANY OF YOU, PERHAPS THE MAJORITY, WILL HAVE HAD TO TRAVEL LONG DISTANCES TO BE HERE THIS MORNING. THAT YOU HAVE DONE SO, AND BROUGHT YOUR PARENTS WITH YOU, IS INDICATIVE OF THE ESTEEM AND AFFECTION WITH WHICH YOU REGARD YOUR ALMA MATER. YOUR JOURNEY THEREFORE HAS SOMETHING IN IT OF THE PILGRIMAGE, AND I AM SURE THAT YOU ALL HAVE, EITHER CONSCIOUSLY OR SUB-CONSCIOUSLY, BEEN REVIEWING YOUR RECENT SOJOURN HERE, AND RELIVING YOUR EXPERIENCES AT RHODES, BOTH PLEASANT AND NOT SO PLEASANT, BUT WITH THE FORMER SURELY IN THE MAJORITY AND UPPERMOST IN YOUR MINDS.

OTHERS OF YOU, A NOT INSIGNIFICANT MINORITY, ARE STILL AT RHODES PURSUING EITHER A PROFESSIONAL OR FURTHER ACADEMIC QUALIFICATION. TO ALL OF YOU, WHETHER YOU HAVE EMBARKED ON YOUR LIFE CAREERS, ARE PERFORMING YOUR DEFERRED MILITARY SERVICE OR ARE ENGAGED IN FURTHER STUDY, I EXTEND MY CONGRATULATIONS OVER PAST ACHIEVEMENTS AND WARMEST BEST WISHES FOR FURTHER SUCCESS IN THE FUTURE. ALL OF YOU HAVE HEEDDED THE WARNING OF A.N. WHITEHEAD, MATHEMATICIAN AND PHILOSOPHER, UTTERED IN 1916, BUT NONETHELESS VALID TODAY:-

"IN CONDITIONS OF MODERN LIFE, THE RULE IS ABSOLUTE: THE RACE WHICH DOES NOT VALUE TRAINED INTELLIGENCE IS DOOMED ----- THERE WILL BE NO APPEAL FROM THE JUDGEMENT WHICH WILL BE PRONOUNCED ON THE UNEDUCATED."

THIS MORNING I WISH TO SHARE WITH YOU SOME THOUGHTS ON SCIENCE, AND TO GIVE CONSIDERATION TO THE WAYS IN WHICH THOSE TRAINED IN THE SCIENTIFIC MOULD CAN MAKE A CONTRIBUTION OUTSIDE THEIR LABORATORIES TO OUR GENERAL WELLBEING. AS IS THE HABIT OF SCIENTISTS I WISH TO PROPOSE SOME HYPOTHESES, NOT ABOUT ESOTERIC MATHEMATICAL OR COMPUTATIONAL PHENOMENA, BUT ABOUT A SUBJECT WHICH IS OF CONCERN TO US ALL, ACADEMICS, STUDENTS AND PARENTS ALIKE. I REFER TO THE PUBLIC FINANCING OF OUR UNIVERSITIES. THEREAFTER, I SHALL BE TOUCHING ON WHAT STRATEGIES A SMALL UNIVERSITY SUCH AS RHODES MIGHT ADOPT IN THE PREVAILING ECONOMIC CIRCUMSTANCES.

WE ARE ALL FAMILIAR IN OUTLINE WITH WHAT SCIENTISTS DO, OR AT LEAST WHAT THEY ARE SUPPOSED TO DO. THE SCIENTIST MAKES OBSERVATIONS, COLLECTS DATA, AND THEN ATTEMPTS TO COORDINATE AND CONNECT APPARENTLY ISOLATED PHENOMENA BY PROPOSING AN HYPOTHESIS. THE HYPOTHESIS SUGGESTS EXPERIMENTS, WHICH ARE THEN CONDUCTED TO PUT IT TO THE TEST. THE RESULTS DICTATE MODIFICATIONS TO THE THEORY, WHICH THEN DEMAND FURTHER EXPERIMENTS, AND SO THE CYCLE CONTINUES. THE WHOLE PROCESS IS SUBJECT TO THE FULL LIGHT OF OPEN PUBLICATION AND SUBSEQUENT CRITICISM OF THOSE COMPETENT IN THE FIELD.

IN SPITE OF THE SPECTACULAR SUCCESS OF SCIENCE AND ITS SISTER TECHNOLOGY OVER THE PAST 300 YEARS, AND MORE PARTICULARLY OVER THE PAST 100 YEARS, THE SCIENTIST REMAINS, AT LEAST IN PRINCIPLE, A VERY MODEST PERSON. HE NEVER CLAIMS TO HAVE THE WHOLE TRUTH, BUT ONLY A TENTATIVE AND FALLIBLE APPROXIMATION TO THE TRUTH, LIABLE TO BE UPSET AT ANY MOMENT BY A NEW AND MORE ENCOMPASSING THEORY. SOME OF THE APPARENTLY MOST ROCK-RIBBED RESULTS OF SCIENCE, OF WHICH NEWTONIAN MECHANICS IS THE PARADIGM, HAVE SUFFERED THIS FATE. INDEED, THE TRUE SCIENTIST IS ALMOST MASOCHISTIC ABOUT HIS THEORIES. HE DEVISES EXPERIMENTS NOT ONLY TO LEND SUPPORT TO THEM, BUT IF POSSIBLE TO DEMOLISH THEM. HE NEVER RESTS CONTENT UNTIL HIS IMAGINATION CAN DEVISE NO FURTHER TESTS THAT HIS THEORY WILL FAIL TO MEET. UNLIKE THE ADVOCATE HE IS NOT AT PAINS TO PUT HIS CLIENT THEORY IN THE BEST POSSIBLE LIGHT. HE IS MORE LIKE THE PUBLIC PROSECUTOR, INTENT ON BRINGING UP EMBARRASSING FACTS. WHEN SUCH FACTS COLLIDE WITH THEORY IT IS ALWAYS THE THEORY THAT COMES OFF SECOND BEST.

WITH SUCH HIGH ACHIEVEMENT AND CONCOMITANT PRESTIGE TO ITS CREDIT IT IS PARADOXICAL THAT SCIENCE, ESPECIALLY THE OLDER AND MOST SUCCESSFUL BRANCHES, ARE NO LONGER IN SUCH HIGH PUBLIC ESTEEM. STUDENTS DO NOT FLOCK TO THEM WITH THE ENTHUSIASM OF YORE, ALTHOUGH THE PICTURE IS NOT QUITE AS BLEAK TODAY AS IT WAS THREE OR FOUR YEARS AGO. THE REASONS ARE MANY AND VARIED. SCIENCE, ESPECIALLY PHYSICS AND CHEMISTRY, IS BLAMED FOR THE SORRY STATE WE ARE IN, THE TERROR OF NUCLEAR STALEMATE, THE SPECTACULAR AND WIDELY PERVASIVE EFFECTS OF POLLUTION ON LAND, SEA AND IN THE AIR, CHEMICAL WARFARE, OR THE POSSIBILITY OF SOME UNFORSEEN AND HORRENDOUS GENETIC DISASTER. SCIENCE IT WOULD SEEM, IS ANTI-HUMAN OR AT BEST A-HUMAN. MORE AND MORE THERE IS A TENDENCY TO AGREE WITH ALEXANDER POPE THAT "THE PROPER STUDY OF MANKIND IS MAN"; HENCE THE INCREASED POPULARITY OF PSYCHOLOGY, SOCIOLOGY, ANTHROPOLOGY AND THE OTHER SOCIAL SCIENCES.



A FURTHER AND EVEN MORE DEBILITATING FACTOR MILITATING AGAINST THE MORE MATURE SCIENCES IS THE SHEER VOLUME OF KNOWLEDGE THAT HAS TO BE ACQUIRED BEFORE A MEANINGFUL CONTRIBUTION CAN BE MADE. IN A NEW AND EMBRYONIC SCIENCE ESPECIALLY IMMEDIATELY AFTER THE FIRST BREAKTHROUGH, A SENSE OF EXHILARATION PERVADES THE AIR. THERE IS FREQUENTLY SUCH A MODEST BODY OF KNOWLEDGE TO MASTER, THAT EVEN THE BRIGHT AND AMBITIOUS UNDERGRADUATE HAS THE CHANCE TO MAKE HIS MARK. IN THE MATURER SCIENCES, EXCEPT FOR THE VERY GIFTED AND PERSEVERING, OR THE EXCEPTIONALLY LUCKY, ADVANCES ARE TOO OFTEN IN PRACTICE TRIVIAL ELABORATIONS ACHIEVED BY, TO USE LORD ASHBY'S PUNGENT PHRASE "CRAWLING ALONG THE FRONTIERS OF KNOWLEDGE WITH A HAND LENS".

THEN THERE IS THE EXPENSE OF THE WHOLE PROCESS. ONLY THE TRULY AFFLUENT SOCIETIES AND INSTITUTIONS CAN AFFORD THE PARTICLE ACCELERATORS, THE ULTRA-SOPHISTICATED MICROSCOPES, COMPUTERS AND OTHER EXOTIC INSTRUMENTATION OF "BIG SCIENCE". NOT TO BE WONDERED AT THEREFORE ARE THE STATISTICS THAT NOT MORE THAN 30% OF THE ALREADY ATTENUATED BODY OF SCIENCE MAJORS PROCEED BEYOND THE FIRST DEGREE, AND NOT MORE THAN 15% CARRY THEIR ENTHUSIASMS INTO THE POSTGRADUATE ARENA BEYOND THE HONOURS DEGREE. IS THE GAME WORTH THE CANDLE, PARTICULARLY FOR THE STUDENT WHO LEAVES THE UNIVERSITY WITHOUT ACADEMICALLY SPECIALISING BEYOND THE BACCALAUREATE OR FOR THE SMALL UNIVERSITY WITH NO REALISTIC PROSPECTS WHATEVER FOR "BIG SCIENCE"? SURELY THERE ARE EASIER WAYS TO PREPARE ONE'S SELF TO EARN A LIVING AND MORE PRODUCTIVE AREAS THAN EXPENSIVE POSTGRADUATE RESEARCH SCIENCE IN WHICH TO DEPLOY A SMALL UNIVERSITY'S VERY LIMITED RESOURCES.

THESE ARE COGENT QUESTIONS WHICH DESERVE OUR SERIOUS ATTENTION. LET US FIRST CONSIDER THE PROSPECTS OF THE NONSPECIALIST SCIENCE GRADUATE ABOUT TO EMBARK ON EARNING HIS LIVING. HE MAY WELL FIND HIMSELF MAKING A VALUABLE CONTRIBUTION IN TEACHING OR IN THE LABORATORIES OF SOME BIG INDUSTRY OR GOVERNMENT DEPARTMENT, WHERE HE CAN BRING HIS SCIENTIFIC TRAINING DIRECTLY TO BEAR. MANY HOWEVER, WILL GO INTO NONSCIENTIFIC EMPLOYMENT IN COMMERCE, INDUSTRY AND GOVERNMENT. THIS WILL FREQUENTLY INVOLVE A FURTHER, THIS TIME PROFESSIONAL, QUALIFICATION. IN THIS RESPECT IT HAS BEEN WIDELY NOTED THAT THE SCIENCE GRADUATE, FURTHER ARMED WITH A QUALIFICATION SUCH AS THE MBA, IS A FORMIDABLE COMPETITOR. AFTER HE HAS FORGOTTEN THE DETAILS OF HIS FORMAL EDUCATION WHAT RESIDUAL ETHOS OR ATTITUDE WILL REMAIN TO DISTINGUISH THE SCIENCE GRADUATE'S OUTLOOK FROM THAT OF HIS LAW, COMMERCE, SOCIAL SCIENCE OR EVEN ARTS CONFRERE? IS IT IMPORTANT THAT SCIENCE TRAINED PEOPLE SHOULD BE IN SUCH NONSPECIALIST EMPLOYMENT, AND IS THERE A SPECIFIC CONTRIBUTION THAT THEY CAN MAKE?

WHAT MOST SPECIFICALLY DISTINGUISHES THE SCIENCE-TRAINED GRADUATE FROM HIS FELLOWS IS HIS EXPOSURE TO AND VIRTUALLY INSTINCTIVE ABSORPTION OF THE SCIENTIFIC METHOD. HIS WHOLE TRAINING LEADS HIM TO QUESTION RECEIVED WISDOM, NOT TO SOLVE PROBLEMS BY APPEALING TO PRECEDENT, OR TO BE OVERAWED BY STATUS AND AUTHORITY. HE WILL CONTINUALLY BE PROPOSING ALTERNATIVE HYPOTHESES TO BOTH TECHNICAL AND ORGANISATIONAL PROBLEMS AND BE ANXIOUS TO PUT THEM TO THE TOUCHSTONE OF TRIAL AND PILOT STUDY. PERHAPS HIS MOST GLARING WEAKNESS WILL BE A CERTAIN INSENSITIVITY TO THE ENORMOUS ATTACHMENT OF ORDINARY PEOPLE TO ESTABLISHED PATTERNS OF LIVING AND WORKING AND THEIR COMMITMENT TO CONSISTENCY OF OPERATION WHICH A PILOT STUDY OR FIELD TRIAL NECESSARILY THREATENS.

MACHIAVELLI PUT IT VERY SUCCINCTLY "THERE IS NOTHING MORE DIFFICULT TO TAKE IN HAND, MORE PERILOUS TO CONDUCT, OR MORE UNCERTAIN IN ITS SUCCESS THAN THE INTRODUCTION OF A NEW ORDER OF THINGS, BECAUSE THE INNOVATOR HAS FOR ENEMIES ALL THOSE WHO HAVE DONE WELL UNDER THE OLD CONDITIONS AND LUKEWARM DEFENDERS IN THOSE WHO MAY DO WELL UNDER THE NEW",

PERHAPS THERE IS NOT ENOUGH MACHIAVELLI IN THE AVERAGE SCIENCE GRADUATE. IN SPITE OF THESE LIMITATIONS, SOCIETY SIMPLY CANNOT AFFORD TO DO WITHOUT HIM. WITHOUT HIS PRESENCE IN BOARDROOMS, COUNCILS, ELECTED BODIES AND GOVERNMENT DEPARTMENTS OUR PAINFUL ACCEPTANCE OF MANIFEST TECHNICAL AND ORGANISATIONAL IMPROVEMENTS WOULD BE EVEN MORE TORTOISELIKE THAN IT IS. SURELY OUR INTERESTS DICTATE MORE RATHER THAN LESS OF THE SCIENTISTS' NEEDLING ICONOCLASM AND IMPATIENCE WITH ARGUMENT DIVORCED FROM CONCRETE PHYSICAL TESTING. ONE IS REMINDED OF THE MEDIAEVAL PHILOSOPHERS WHO WERE SPECULATING ON THE NUMBER OF TEETH A NORMAL HORSE SHOULD POSSESS. THE OPINION OF ARISTOTLE, THE SYMMETRY DEMANDED BY NATURE, AND POSSIBLE LIGHT ON THE SUBJECT FROM SCRIPTURE WERE ALL CITED. ULTIMATELY ONE BOLD HERETIC MADE THE OUTRAGEOUS SUGGESTION THAT A HORSE SHOULD ACTUALLY BE CAUGHT AND EXAMINED. HE WAS PROMPTLY BANISHED FROM RESPECTABLE COMPANY. IF THE SCIENCE GRADUATES OF THIS UNIVERSITY ARE WILLING AND COURAGEOUS ENOUGH TO PLAY THIS ROLE IN OUR CIRCUMSTANCES, THEN THE EDUCATION THEY RECEIVED HERE WILL NOT HAVE BEEN IN VAIN. UNFORTUNATELY, THEY MUST ALL TOO FREQUENTLY BE PREPARED TO RISK A SIMILAR FATE.



IS IT NOT REGRETTABLE, FOR EXAMPLE, THAT THE POTENTIAL EFFECTS OF DRUG-TAKING, THE ABOLITION OF CAPITAL PUNISHMENT, THE INTRODUCTION OF BLACK TRADE UNIONS, THE AVAILABILITY OF PORNOGRAPHIC LITERATURE, ARE NOT JUDGED MORE BY CONTROLLED EXPERIMENTATION AND LESS BY DOGMA ? THE JOURNALIST HENRY KATZEW NOW LIVING IN THE UNITED STATES, BUT WHOSE ARTICLES ARE ONCE AGAIN APPEARING WITH SOME FREQUENCY IN OUR NEWSPAPERS, PROPOSED A FEW YEARS BACK THAT A PILOT STUDY OF THE VIABILITY OF SEPARATE DEVELOPMENT BY WAY OF THE ESTABLISHMENT OF ONE, JUST ONE, EXCLUSIVELY WHITE COMMUNITY WOULD BE AN ILLUMINATING SOCIAL EXPERIMENT. HE ALSO ADDED THAT IN VIEW OF VESTED INTERESTS IT MIGHT BE NECESSARY TO CONDUCT THE EXPERIMENT IN A NEWLY ESTABLISHED COMMUNITY AND HE CITED EARLY PIONEERING JEWISH AGRICULTURAL COMMUNITIES IN WHAT WAS THEN CALLED PALESTINE WHO STEADFASTLY REJECTED THE SIREN CALL OF LOCAL UNSKILLED ARAB LABOUR. AN EQUALLY ILLUMINATING PROPOSAL WOULD BE THE VOLUNTARY LICENSING OF ONE COMMUNITY TO BE, TO USE THE ACCEPTED PARLANCE, "INTERNATIONAL". WE NOW HAVE INTERNATIONAL AIRPORTS, HOTELS AND THEATRES. WOULD IT BE TOO GREAT A STEP TO CONSIDER AN INTERNATIONAL TOWN? ACCORDING TO BOTH THE CURRENT MAJOR COMPETING DOCTRINES ONE OR THE OTHER OF THESE COMMUNITIES WOULD BE UTOPIA AND THE OTHER WOULD COLLAPSE IN A WELTER OF ACRIMONY, SOCIAL AND ECONOMIC DISLOCATION AND MORAL CORRUPTION, ITS FATE, LIKE SODOM AND GOMORRAH, AN IRREFUTABLE WARNING FOR GENERATIONS TO COME.

KATZEW'S ORIGINAL PROPOSAL CAUSED A CONSIDERABLE FLUTTER IN THE DOVECOTES OF THE THEORETICIANS, BUT THE SILENCE FROM THE HARDHEADED, PRACTICAL, PROFESSIONAL POLITICIANS WAS DEAFENING. A SCIENTIST WHO BAULKED AT AN EXPERIMENT CRUCIAL TO THE VERIFICATION OR FALSIFICATION OF HIS HYPOTHESES WOULD RECEIVE SHORT SHRIFT AT THE HANDS OF HIS PEERS. POLITICIANS, IT WOULD SEEM, ARE IMMUNE TO THE TESTING OF THEIR HYPOTHESES. THEY WOULD NOT BE IF AN ALERT CITIZENRY, LEAVENED BY SCIENTIFICALLY TRAINED GRADUATES, SUBJECTED THEIR OFFERINGS TO MORE RIGOROUS ANALYSIS. THE LEVEL OF POLITICAL DEBATE WOULD BE ENHANCED EVEN MORE IF SCIENCE-TRAINED CANDIDATES PRESENTED THEMSELVES IN EVEN APPROXIMATELY PROPORTIONATE NUMBERS FOR ELECTION TO REPRESENTATIVE BODIES. EXCELLENT PEOPLE THOUGH THEY UNDOUBTEDLY ARE, WE SOUTH AFRICANS DO SEEM TO DISPLAY AN UNFORTUNATE PENCHANT FOR ELECTING TOO MANY LAWYERS AND FARMERS. THE PAUCITY OF WILLING SCIENTISTS IS AN UNFORTUNATE WORLDWIDE TENDENCY, ALTHOUGH ONE MUST MENTION THAT PRESIDENT CARTER HAS SOME TRAINING IN NUCLEAR MATTERS AND MRS MARGARET THATCHER WAS A RESEARCH CHEMIST. IT IS ONE OF THEIR LESS ENDEARING CHARACTERISTICS THAT SCIENTISTS FREQUENTLY REGARD THE ILLS AND SHORTCOMINGS OF SOCIETY AS BEING LARGELY THE CONSEQUENCE OF THE IRRATIONAL BEHAVIOUR OF OTHER PEOPLE, AND AS SUCH UNWORTHY OF SERIOUS SCIENTIFIC STUDY. IT IS IN THIS AREA IN PARTICULAR THAT THE SOCIAL SCIENTIST HAS A GREAT DEAL TO TELL US, AND IT IS OF SYMBOLIC VALUE THAT THE TWO FACULTIES ARE GRADUATING TOGETHER.

I HAVE BEEN ADVOCATING, MR CHANCELLOR, A GREATER APPLICATION OF THE PRINCIPLES OF SCIENTIFIC METHOD TO THE GENERAL PROBLEMS OF PUBLIC LIFE. THERE IS NO DEFENCE THEREFORE AGAINST THE SUGGESTION THAT THE SPOTLIGHT OF THESE PRINCIPLES SHOULD BE APPLIED TO THE UNIVERSITY SITUATION. WE THE UNIVERSITY COMMUNITY TEND TO REACT WITH HURT AND WOUNDED PRIDE WHEN OUR FALL IN PUBLIC ESTEEM IS EVIDENCED BY CUTS IN SUBSIDY AND LOUD PUBLIC CRITICISM OF WHAT ARE REGARDED AS INORDINATELY HIGH FAILURE RATES, ESPECIALLY IN THE FIRST YEAR OF STUDY. BEFORE WE PESSIMISTICALLY ACQUIESCE IN ONE OF THE CONCLUSIONS OF THE 1973 FINAL REPORT OF THE CARNEGIE COMMISSION ON HIGHER EDUCATION THAT "HIGHER EDUCATION HAS MOVED FROM GENTEEL POVERTY TO GENTEEL POVERTY IN ONE GENERATION", LET US LIKE TRUE SCIENTISTS TAKE A HARD LOOK AT SOME OF THE FACTS. IN A RECENT SPEECH IN BLOEMFONTEIN THE MINISTER OF NATIONAL EDUCATION REMINDED US THAT IN 1949 THE TOTAL GOVERNMENT SUBSIDY FOR ALL WHITE RESIDENTIAL UNIVERSITIES WAS LESS THAN R1 500 000, A FIGURE IN ITSELF SUFFICIENT EVIDENCE FOR THE FIRST CYCLE OF GENTEEL POVERTY TO WHICH THE CARNEGIE COMMISSION REFERS. IN 1977 THE FIGURE WAS A HAIRSBREADTH SHORT OF R200 000 000. DURING THE INTERVENING THIRTY-ODD YEARS STUDENT NUMBERS ROSE FOURFOLD FROM APPROXIMATELY 18 000 TO 72 000. IF WE TAKE AN OVERALL INFLATION FACTOR OF SIX, AS EVIDENCED BY WHAT HAS HAPPENED TO VICE-CHANCELLORS' SALARIES DURING THAT PERIOD, THEN GOVERNMENT SUPPORT TO UNIVERSITIES IN REAL TERMS PER STUDENT HAS RISEN BETWEEN FIVE- AND SIXFOLD. IT IS HARDLY SURPRISING THEREFORE THAT THE AUTHORITIES SHOULD BE SEEKING TO CONTAIN THESE EXPENSES, AND THAT THEY SHOULD BE MAKING MORE URGENT INQUIRIES AS TO WHETHER THE MONEY IS PRODUCING SATISFACTORY RETURNS. THE FAILURE OF A STUDENT TODAY IS AFTER ALL FIVE TIMES MORE PAINFUL TO THE TAXPAYER THAN IT WAS IN 1949. THE PRESSURE IS CERTAINLY ON THE UNIVERSITIES THEREFORE TO REDUCE FAILURE RATES. REPRESENTATIVE FIGURES ARE THAT OF EVERY 100 STUDENTS ENROLLING AT WHITE RESIDENTIAL UNIVERSITIES ONLY 55 EVENTUALLY OBTAIN DEGREES OR DIPLOMAS. APPROXIMATELY 30 OF THE ORIGINAL 100 DO NOT PROCEED BEYOND THE FIRST YEAR OF STUDY. THIS MEANS THAT IN EFFECT THE UNIVERSITIES ARE USING THE FIRST YEAR ITSELF AS THEIR SELECTION PROCESS, AND A VERY EXPENSIVE ONE IT IS TOO, SINCE, AGAIN ACCORDING TO THE MINISTER, IT IS COSTING THE TAXPAYER BETTER THAN R2 200 FOR EVERY WASTED YEAR. IT IS COMFORTING TO NOTE, HOWEVER, THAT NEARLY 80%, A VERY RESPECTABLE FIGURE, OF THOSE STUDENTS WHO DO SURMOUNT THE FIRST YEAR HURDLE EVENTUALLY OBTAIN DEGREES.

SUPERFICIALLY IT IS VERY EASY TO BLAME THE UNIVERSITIES FOR THIS SORRY STATE OF AFFAIRS. THE REASONS ADVANCED ARE ONLY LIMITED BY THE IMAGINATION OF THE CRITICS. UNIVERSITIES DO NOT CONCENTRATE ENOUGH ON TEACHING, STUDENT ADVISORY SERVICES ARE INADEQUATE, LIAISON WITH SCHOOLS IS NOT SUFFICIENTLY DEVELOPED, CLASSES ARE TOO IMPERSONAL, STUDENTS PLAY TOO MUCH SPORT, OR LEAD TOO ACTIVE A SOCIAL LIFE, ET CETERA, ET CETERA. THE TRUTH, MR CHANCELLOR, I BELIEVE LIES ELSEWHERE - IN OUR PUBLIC POLICY.



LET US BY ANALOGY CONSIDER THE SITUATION IN THE HIGH SCHOOLS. IT IS NOW WIDELY ACCEPTED THAT EVERY CHILD SHOULD BE GIVEN A CHANCE TO COMPLETE HIS SECONDARY EDUCATION, EVEN IF ONLY BY MEANS OF A SCHOOL-LEAVING CERTIFICATE "PRACTICAL MATRIC". IN OTHER WORDS, SOCIAL PRESSURES CONVERGE ON ALL WHO PASS STANDARD FIVE TO CONTINUE THEIR EDUCATION. THE RESULT, ALMOST PREDICTABLY, IS THAT OF EVERY 100 WHITE CHILDREN WHO ENTER STANDARD SIX ONLY ABOUT 55 SURVIVE TO ENTER STANDARD TEN. STRANGELY, THERE IS NO GREAT OUTCRY THAT THE HIGH SCHOOLS ARE PERFORMING POORLY, POSSIBLY BECAUSE PER PUPIL THEY ARE FAR LESS EXPENSIVE THAN UNIVERSITIES. ON A MORE EMOTIONAL PLANE THE LACK OF OUTCRY MAY IN PART BE ATTRIBUTED TO THE OBSERVATION THAT WHEN THEY BEHAVE BADLY HIGH SCHOOL PUPILS DO SO FAR LESS VISIBLY THAN DO UNIVERSITY STUDENTS.

THERE IS ABUNDANT EVIDENCE FROM ALL OVER THE WORLD THAT IN EDUCATIONAL INSTITUTIONS WHERE ALL OSTENSIBLY QUALIFIED APPLICANTS ARE ACCEPTED, IT IS UNREALISTIC TO ANTICIPATE SUCCESS RATES MUCH BETTER THAN 55 TO 60%, NO MATTER HOW HEROIC THE EFFORTS OF THE LECTURERS AND PROFESSORS. PROFESSOR G R BOZZOLI, RETIRED VICE-CHANCELLOR OF THE UNIVERSITY OF THE WITWATERSRAND, A NUMBER OF YEARS AGO COLLECTED STATISTICS THAT ESTABLISHED THIS POINT BEYOND CAVIL. CONVERSELY, INSTITUTIONS SUCH AS PRESTIGE OVERSEAS UNIVERSITIES OR EVEN SOME OF OUR OWN MEDICAL SCHOOLS THAT HABITUALLY REJECT OVER 80% OF APPLICANTS, CAN LOOK FORWARD WITH CONFIDENCE TO OVERALL PASS RATES OF 90 OR EVEN 95%. FURTHER EVIDENCE IS ALSO PROVIDED BY THE FACT THAT WOMEN STUDENTS CONSISTENTLY PERFORM BETTER THAN MEN. BEFORE THE WOMEN TAKE TOO DEEP A CURTSEY LET US NOTE THAT EVEN TODAY A SMALLER PERCENTAGE OF WOMEN ENTER THE UNIVERSITY. THE MORE ABLE WOMEN IN EFFECT SELECT THEMSELVES.

IT IS A REASONABLY CONSERVATIVE HYPOTHESIS THAT IF THE UNIVERSITIES ACCEPTED ONLY 50% OF THEIR APPLICANTS THE OVERALL PASS RATE FOR A THREE YEAR DEGREE COULD EASILY BE RAISED TO 80% AND THAT NEARLY ALL OF THIS 80% WOULD COMPLETE THEIR STUDIES IN THE MINIMUM PERIOD. IT IS WORTH NOTING IN PASSING THAT A GENERATION AGO IN 1949 AN INDIRECT SELECTION PROCESS OF THIS MAGNITUDE WAS IN FACT TAKING PLACE. SINCE THEN THE WHITE POPULATION HAS DOUBLED, BUT THE STUDENT NUMBERS HAVE INCREASED FOURFOLD. THE WHITE SOUTH AFRICAN POPULATION HAS A HIGHER PERCENTAGE OF STUDENTS THAN VIRTUALLY ANY COUNTRY OUTSIDE NORTH AMERICA, FAR HIGHER THAN SUCH DEVELOPED COUNTRIES AS BRITAIN, WEST GERMANY AND RUSSIA. LET US COMPARE THE FINANCIAL CONSEQUENCES OF THIS DECISION WITH THE PRESENT SITUATION. AT PRESENT SOUTH AFRICAN WHITE UNIVERSITIES PRODUCE 55 GRADUATES FOR EVERY 100 ENTRANTS. UNDER

REALISTIC ASSUMPTION AS TO HOW LONG THESE 100 STUDENTS, BOTH THE SUCCESSFUL AND THE UNSUCCESSFUL, ATTEND, THE COST TO THE STATE IS OF THE ORDER OF R528 000 OR APPROXIMATELY R9 000 PER GRADUATE. IF ONLY 50 WERE ORIGINALLY ACCEPTED AND UNDER THE ASSUMPTION THAT 40 WOULD GRADUATE IN THE MINIMUM TIME AND THE 10 UNSUCCESSFUL ONES STAYED ONLY A YEAR, THE COST WOULD BE R286 000 OR ABOUT R7 150 PER GRADUATE. THE REALLY SIGNIFICANT FIGURE, HOWEVER, IS THE MARGINAL COST PER GRADUATE OF THE 15 EXTRA ONES ARISING FROM HAVING NO INTAKE SELECTION. THE FIGURE IS NEARLY R16 000.

ARE THE EXTRA 15 WORTH THE INORDINATE UNIT COST? IF WE WERE TO CONTENT OURSELVES WITH ONLY 72% OF OUR PRESENT GRADUATE NUMBERS THE COST OF RUNNING THE UNIVERSITIES COULD BE BROUGHT DOWN TO ABOUT 54% OF THE PRESENT BILL, (ADMITTEDLY WITH NO ADJUSTMENT MADE FOR THE ECONOMIES OF SCALE.) THE COST PER GRADUATE WOULD ONLY BE 80% OF THE PRESENT FIGURE. I MUST EMPHASISE THAT I AM NOT ADVOCATING THAT THOSE NOT ADMITTED TO THE UNIVERSITY SHOULD RECEIVE NO TERTIARY EDUCATION AT ALL. THERE IS A WIDE VARIETY OF OTHER POST SECONDARY PROFESSIONAL AND TECHNICAL EDUCATION AVAILABLE, MOST NOTABLY THE COLLEGES FOR ADVANCED TECHNICAL EDUCATION. IN SOUTH AFRICA APPROXIMATELY 80% OF TERTIARY ENROLMENT IS AT THE UNIVERSITIES, A MOST UNHEALTHY IMBALANCE AWAY FROM THE OTHER, AND EQUALLY IMPORTANT FORMS OF EDUCATION AVAILABLE.

I HAVE TAKEN WHAT IS A POLITICALLY UNACCEPTABLY HIGH CULLING RATE 50% FOR THE PURPOSES OF SIMPLIFYING THE ARGUMENT, BUT THE CONCLUSION DOES SEEM INESCAPABLE THAT IF THE STATE IS UNWILLING OR UNABLE TO FOOT THE FULL UNIVERSITIES' SUBSIDIES BILL THEN SOME DEGREE OF CULLING MUST FOLLOW SOONER OR LATER. MINING ANALOGIES ARE READILY UNDERSTOOD IN SOUTH AFRICA AND ARE THE MORE APPROPRIATE BECAUSE OF OUR MINISTER'S PREVIOUS STINT AS MINISTER OF MINES. IF THE PRICE OF GOLD FALLS, THE MINES ARE PERMITTED TO MINE TO A HIGHER AVERAGE GRADE, AND TO LEAVE LOWER GRADE ORE IN THE GROUND. THEY ARE PAID PER KILOGRAMME OF GOLD ACTUALLY PRODUCED, BUT THE PRESENT UNIVERSITY STRUCTURE, BASED AS IT IS ON A HEAD COUNT, IS IN EFFECT PAYING US PER METRE OF STOPE FACE ADVANCED, REGARDLESS OF THE GRADE OF ORE ENCOUNTERED. IT PAYS UNIVERSITIES TO ATTRACT AS MANY STUDENTS AS POSSIBLE, AND THEY IN FACT COMPETE WITH EACH OTHER FOR THE AVAILABLE WARM BODIES TO THE EXTENT THAT ACADEMIC DIGNITY AND DECORUM PERMIT.



IMAGINE INSTEAD A SITUATION IN WHICH THE SUBSIDY WAS NOT R2 200 PER ANNUM PER STUDENT IN ATTENDANCE BUT RATHER R8 800 PER THREE-YEAR DEGREE AWARDED. A VERY DIFFERENT PICTURE WOULD EMERGE. LET US GO FURTHER AND ADAPT AN IDEA ORIGINALLY PROPOSED BY THE DISTINGUISHED CHICAGO ECONOMIST MILTON FRIEDMAN: ABOLISH THE SUBSIDY ALTOGETHER AND REPLACE IT WITH A R8 800 INTEREST-FREE LOAN TO THE PARENTS, REPAYABLE TO THE GOVERNMENT BY THE PARENTS ONLY IF THE SON OR DAUGHTER DOES NOT GRADUATE. THE UNIVERSITY WOULD THEN BE OBLIGED TO RECOVER ITS FULL RUNNING COSTS BY WAY OF FEE INCOME ALONE. THIS WOULD HAVE THE ADVANTAGE OF BRINGING OUT INTO THE OPEN THE TRUE COSTS OF OPERATING A UNIVERSITY. PARENTS WOULD THEN ONLY ACCEPT SUCH A DEGREE OF RESPONSIBILITY IF THEY WERE CONFIDENT OF THEIR OFFSPRING'S ABILITY AND MOTIVATION, AND IF THEY WERE SATISFIED WITH THE QUALITY OF THE DEGREE AND THE TEACHING OFFERED. EQUALLY IMPORTANTLY, INSURANCE COMPANIES WOULD SET PREMIUMS ON POLICIES TO UNDERWRITE THE PARENTAL RISK, ONLY AFTER OBJECTIVE ASSESSMENT OF THE SAME FACTORS.

UNDER SUCH CIRCUMSTANCES THE UNIVERSITIES WOULD IN ALL PROBABILITY NOT HAVE TO CULL MUCH, IF AT ALL, BECAUSE IN GENERAL ONLY WORTHWHILE UNIVERSITY MATERIAL WOULD PRESENT ITSELF, AND THEN ONLY IF WORTHWHILE TEACHING LEADING TO A WORTHWHILE DEGREE WERE ON OFFER. IS THAT NOT IN BRIEF A DESCRIPTION OF THE MILLENNIUM WE ARE ALL SEEKING?

IN THE INTERESTS OF EXPOSITION I AM PRESENTING THE PROPOSAL IN AN EXTREME FORM. ONE CAN READILY IMAGINE AN INTERMEDIATE MIX OF A PARTIAL DIRECT SUBSIDY AND A PARTIAL CONDITIONAL LOAN SYSTEM. THE IMPORTANT POINT IS THAT THERE SHOULD BE SOME DISINCENTIVE AGAINST POTENTIALLY POOR PERFORMERS, AND AGAINST THE TEMPTATION FOR UNIVERSITIES TO EXPAND VIRTUALLY WITHOUT LIMIT.

IN VIEW OF MY EARLIER REMARKS ON SCIENTIFIC METHOD I AM ADVANCING SUCH AN HYPOTHESIS, NOT AS ULTIMATE WISDOM, BUT AS A POSSIBLE BASIS FOR SOME RATIONAL AND CONTROLLED EXPERIMENTATION. IN THE MEANWHILE IT IS WORTHWHILE SPECULATING ON WHAT STRATEGIES A SMALL UNIVERSITY SUCH AS RHODES SHOULD ADOPT IN THE PREVAILING CIRCUMSTANCES. QUITE CLEARLY THE ELIMINATION OF EXPENSIVE POSTGRADUATE SCIENCE IS NOT PART OF THE ANSWER. AT RHODES WE ARE PARTICULARLY PROUD OF OUR EXCELLENT SCIENCE DEPARTMENTS, WHO HAVE ESTABLISHED THEIR HIGH STANDING BECAUSE THEY HAVE BEEN VALUED FOR THEMSELVES AND HAVE NOT BEEN OVERWHELMED BY SERVICE TEACHING TO LARGE PROFESSIONAL FACULTIES. THEY HAVE ALSO CHANNELLED THEIR RESEARCH INTERESTS

INTO AREAS WHICH ARE NOT A CRIPPLING FINANCIAL BURDEN. SCIENTIFIC METHOD, THE IMPORTANCE OF WHICH I HAVE SO HEAVILY STRESSED, IS A FUNDAMENTAL COMPONENT OF OUR ACADEMIC AND CULTURAL LIFE. IT CAN ONLY BE ABSORBED IN AN ATMOSPHERE WHERE RESEARCH SCIENCE IS ACTUALLY PRACTISED.

EQUALLY CLEARLY PART OF THE ANSWER IS THE ESTABLISHMENT AND MAINTENANCE OF A TOP-FLIGHT PROFESSIONAL ADMINISTRATION, SO THAT WE RUN OUR DAY TO DAY AFFAIRS AS EFFICIENTLY AS A SUCCESSFUL PRIVATE BUSINESS. IN ORDER TO DO THIS WE MUST HAVE A STEADY INFLOW OF SUITABLY COMPETENT AND QUALIFIED PEOPLE. THIS IS AN IDEAL WITH WHICH I AM NOT PREPARED TO COMPROMISE. ALONG WITH ALL SOUTH AFRICAN UNIVERSITIES WE SHALL EVENTUALLY BE COMPELLED TO ACCEPT A GREATER DEGREE OF SPECIALISATION. THERE ARE ALREADY MANY COURSES OFFERED AT ONLY A FEW CENTRES. THIS PROCESS WILL INEVITABLY BE EXTENDED INTO AREAS WHERE DEMAND FOR A PARTICULAR COURSE CAUSES STUDENT ENROLMENT OVER A SUSTAINED PERIOD TO SHRINK FAR BELOW ANY REASONABLE ECONOMIC THRESHOLD. A THIRD FACTOR WHICH WE SHALL HAVE TO CONSIDER IN THE FAIRLY NEAR FUTURE, INDEPENDENTLY OF ARGUMENTS RELATING TO SUBSIDY CALCULATIONS, IS SOME LIMITATION OF INTAKE. WE HAVE AT PRESENT SOME 2 500 FULL TIME UNDERGRADUATE AND HONOURS LEVEL STUDENTS, OF WHOM 1 600 LIVE IN OUR RESIDENCES. 200 LIVE WITH THEIR PARENTS AND 700 LIVE IN DIGS IN THE CITY. THE CAPACITY OF THE CITY TO PROVIDE STUDENT LODGINGS IS REACHING ITS LIMIT, WHILE THE RESIDENCE SYSTEM COULD BE EXPANDED BY PERHAPS THREE TO FOUR HUNDRED PLACES THROUGH VERY CAREFUL PLANNING. WITH A FULL-TIME NONGRADUATE STUDENT COMPLEMENT OF 3 000 WE SHOULD BE UTILISING ALL OUR PHYSICAL RESOURCES TO CAPACITY. EXPANSION BEYOND THAT POINT WOULD ENTAIL AN INORDINATELY HEAVY CAPITAL OUTLAY, WHICH MIGHT ALSO BRING WITH IT THE DANGER OF IRRETRIEVABLY ALTERING THE TRADITIONAL ATMOSPHERE OF RHODES AS AN INSTITUTION, SO INEXTRICABLY BOUND UP WITH ITS SMALL AND HUMAN SCALE. THE CAPACITY OF THE CITY'S RESOURCES TO ABSORB ANY GREATER NUMBERS WOULD ALSO BE UNDER SEVERE STRAIN.

IN SHORT , MY PRESCRIPTION FOR RHODES IS: STAY SMALL, STAY HUMAN AND CONCENTRATE ON THE THINGS WE DO REALLY WELL. IN SPITE OF THE POLITICAL AND ECONOMIC UNCERTAINTIES WHICH BESET US, THE STAFF, BOTH ACADEMIC AND ADMINISTRATIVE, ARE IN GOOD HEART. STUDENT MORALE IS HIGH. OUR NUMBERS ARE GREATER THAN EVER BEFORE. BY THE END OF THIS MORNING'S CEREMONY, MR CHANCELLOR, YOU WILL HAVE CAPPED MORE GRADUANDS THAN HAVE EVER PRESENTED THEMSELVES IN A SINGLE YEAR. NO VICE-CHANCELLOR OF A UNIVERSITY TODAY COULD POSSIBLY SURVIVE UNLESS HE WERE AN OPTIMIST. I AM THEREFORE FULL OF HOPE FOR THE PRESENT AND HAVE GREAT FAITH IN THE FUTURE. "FAITH", AS ST PAUL REMINDS US, "IS THE SUBSTANCE OF THINGS HOPED FOR, THE EVIDENCE OF THINGS NOT SEEN". THAT MAY WELL NOT BE A VERY SCIENTIFIC NOTE ON WHICH TO END, BUT EVEN SCIENTISTS HAVE IN THE LAST ANALYSIS TO BE MEN OF FAITH.