

WELCOME TO DELEGATES : 22ND ANNUAL CONFERENCE OF THE S.A. INSTITUTE
OF PHYSICS, 4 - 7 JULY 1977

LADIES AND GENTLEMEN,

AS VICE-CHANCELLOR OF RHODES UNIVERSITY IT IS MY PLEASANT TASK TO
EXTEND TO EACH ONE OF YOU A WARM AND HEARTY WELCOME. WE AT RHODES
ARE VERY PROUD OF OUR SMALL AND CLOSE-KNIT UNIVERSITY COMMUNITY.
AS CITIZENS OF GRAHAMSTOWN WE ARE ALSO VERY PROUD OF OUR SMALL CITY,
WITH ITS CLEAN AIR, BEAUTIFUL NATURAL SURROUNDINGS AND UNIQUE HISTORY.
IN A CANTANKEROUS SORT OF WAY WE ARE EVEN PROUD OF OUR SOMEWHAT
UNPREDICTABLE CLIMATE. THERE ARE EVEN SOME WHO AVER, THAT LIKE THE
BRITISH ISLES, WE DO NOT HAVE A CLIMATE AT ALL, ONLY WEATHER. IN ANY
EVENT I SINCERELY HOPE THAT ALL THREE, THE UNIVERSITY, THE CITY AND
THE WEATHER WILL TREAT YOU BENIGNLY DURING YOUR FOUR DAYS OF DELIBERATIONS.

WITHIN THE UNIVERSITY WE ARE PARTICULARLY PROUD OF OUR PHYSICS DEPARTMENT, AND WITHIN THE CITY WE LOOK WITH SPECIAL PRIDE ON THIS MAGNIFICENT BUILDING ON GUNFIRE HILL, THE 1820 SETTLERS NATIONAL MONUMENT. THE RESOURCES OF BOTH ARE AT YOUR DISPOSAL: UTILIZE THEM TO THE FULL.

LADIES AND GENTLEMEN, ON YOUR BEHALF I SHOULD LIKE TO EXTEND A SPECIAL WORD OF WELCOME TO DR F.J. HEWITT, DEPUTY PRESIDENT OF THE CSIR, WHO WILL SHORTLY BE DELIVERING THE OPENING ADDRESS. IN ONE SENSE, HOWEVER, DR HEWITT NEEDS NO WELCOME AT ALL, FOR HE IS ALREADY A MEMBER OF THE FAMILY IN THAT HE IS A GRADUATE OF RHODES UNIVERSITY. AS SUCH, HE WILL, LIKE ALL RHODIANS BOTH BEFORE AND AFTER HIM, HAVE LEFT A LITTLE BIT OF HIS PSYCHE PERMANENTLY BEHIND IN THE CITY OF SAINTS. DURING THE DAYS THAT FOLLOW, HE WILL HAVE AN OPPORTUNITY TO CATCH UP WITH IT.

TURNING NOW TO THE INVITED OVERSEAS SPEAKERS, I CAN MAKE THE SAME
 OBSERVATION ABOUT PROFESSOR GOUGH. HE IS CURRENTLY ENJOYING A SABBATICAL
 PERIOD AT HIS OLD ALMA, ^{MATEA} WHERE HE IS ENGAGED ON HIS RESEARCH INTO
 TIME-VARYING MAGNETIC FIELDS AND ON WRITING A BOOK, IN CONJUNCTION WITH
 HIS WIFE, ALSO AN OLD RHODIAN. (THEY ALL COME BACK IN THE END, TO TAKE
 AT LEAST ONE MORE LOOK AT THE UNIVERSITY AND CITY WHICH LAUNCHED THEM
 ON THEIR CAREERS).

IN ORDER NOT TO LEAVE THEM IN THE COLD I THINK THAT WE SHALL HAVE TO MAKE
 HONORARY OLD RHODIANS OF DR DE LA RIPELLE, PROFESSOR ELLIOTT, DR PHELPS AND
 PROFESSOR BLACK. I CERTAINLY HOPE THAT YOU FEEL ^{like Old Rhodians} ~~THAT WAY~~ BEFORE YOU
 LEAVE US AT THE END OF THE WEEK.

ONS BESOEKERS VAN BINNE SUID-AFRIKA EN UIT AANGRENSENDE GEBIEDE IS TE VEEL OM BY NAME TE NOEM, MAAR IS EWE WELKOM. DIT IS BESONDER AANGENAAM OM SO BAIE GESIGTE TE SIEN UIT DIE UNIVERSITEITE, ASOOK UIT STAATS - EN STAATSVERWANTE INRIGTINGS. OOK AAN U, 'N BAIE HARTLIKE WELKOM,

TERWYL DIT IN HIERDIE TYD DIE MODE IS (EN AL TE MAKLIK GEWAAG WORD) OM DIE NADERENDE HEENGAAN VAN FISIKA TE VOORSPEL, IS DIT AANGRYPEND OM BYNA 150 AFGEVAARDIGDES TE KAN TEL, WESENLIK GESOND EN WEL, GEREED OM TE BEGIN MET DIE OORWEGING VAN MEER AS 135 GELEERDE REFERATE OOR 'N MERKWAARDIGE VERSKEIDENHEID VAN ONDERWERPE. SO VOL HET U AGENDA GEWORD, DAT DIT NODIG GEVIND IS OM DIT TE VERLENG NA DRIE DAE MET VIER GELYKTYDIGE SESSIES.

VERAL IN HIERDIE DAE VAN GELDSKAARSTE, MOET DIE VISE-KANSELIER VAN 'N UNIVERSITEIT VERGEWE WORD AS HY FISIKA ONDER DIE DUURDER VAKKE TEL. IN VERGELYKING MET GROOT FISIKA, VERAL HOË-ENERGIE FISIKA, SOOS TOEGEPAS

IN DIE GROOT OORSESE WEDYWERING, KAN SELFS MY ONOPGELEIDE OOG BESEF DAT DIE MATERIALE VEREISTES VAN U NAVORSING, TEEN SULKE STANDAARDE, WERKLIK AS BESKEIE KAN BESKRYF WORD. DIT IS OOK DUIDELIK DAT BAIE DAARVAN 'N GROOT WAARSKYNLIKHEID HET OM BINNA REDELIKE TYDSDUUR 'N UITEINDELIKE PRAKTIESE VERGOEDING AAN DIE LAND TE LEWER. EK BESEF DAT DIT GEENSINS 'N SINE QUA NON VIR GESLAAGDE NAVORSING IN SUID-AFRIKA IS NIE. NOGTANS IS DIT 'N GERUSSTELLEND GELOOFSPUNT OM TE AANVAAR.

AS I HAVE ALREADY REMARKED, BOTH THE SCOPE AND THE VARIETY OF YOUR INTERESTS AS EXHIBITED IN THE PROGRAMME, INDICATE THAT PHYSICS RESEARCH IN SOUTH AFRICA IS IN A FAR FROM MORIBUND STATE. I DOUBT IF ANY OTHER FUNDAMENTAL ACADEMIC DISCIPLINE COULD MOUNT AS IMPRESSIVE A CONFERENCE AS THE ONE THAT IS ABOUT TO BEGIN.

THE STATE OF PHYSICS TEACHING, BOTH IN THE HIGH SCHOOLS, AND IN THE UNIVERSITIES, ^{IS ANOTHER MATTER} TO THIS AUDIENCE IN PARTICULAR, THERE IS NO NEED TO DWELL ON THE FACTS. THEY ARE IN ANY CASE MORE FAMILIAR TO YOU THAN THEY ARE TO ME. THE DROP IN ENROLMENT IN PHYSICS DEPARTMENTS, AND THE CONSEQUENT SHORTAGE OF COMPETENT HIGH SCHOOL TEACHERS, ARE WE ARE TOLD, PART OF A WORLD-WIDE TREND, THE LONG TERM EFFECTS OF WHICH ARE, BOTH IN EDUCATIONAL AND ECONOMIC TERMS, ALARMING IN THE EXTREME. THERE IS SOME EVIDENCE TO SUGGEST, HOWEVER, THAT WE HAVE PASSED THE NADIR, AND MATTERS ARE IMPROVING. I CERTAINLY HOPE THAT THIS IS THE CASE, AND I HOPE THAT WE SHALL SOON PASS

THE MILESTONE OF HAVING MORE FINAL YEAR PHYSICS STUDENTS AT OUR SOUTH AFRICAN UNIVERSITIES THAN THERE ARE DELEGATES IN THIS ROOM.

I RECENTLY ATTENDED A CONFERENCE OF COMPUTER LECTURERS IN RUSTENBURG, TRANSVAAL, A FAR LESS IMPRESSIVE AFFAIR THAN YOUR GATHERING. ONE OF THE OVERSEAS INVITED SPEAKERS, PROFESSOR DAVID BARROW OF SOUTHAMPTON, HAD OCCASION TO MAKE SOME REMARKS ABOUT THE TEACHING OF FORTRAN, THE FIRST OF THE MACHINE INDEPENDENT ARTIFICIAL LANGUAGES. IT IS NOW ALL OF EIGHTEEN YEARS OLD, AND HAS REACHED THE STAGE OF BEING A CLASSIC. IN FACT PROFESSOR BARROW DREW AN ANALOGY WITH THE TEACHING OF LATIN TO EARLIER GENERATIONS. QUOTING A WIDELY HELD APHORISM, HE REMARKED THAT "EVERY GENTLEMAN SHOULD HAVE FORGOTTEN LATIN - NO GENTLEMAN SHOULD KNOW LATIN".

WHEN I WAS AN UNDERGRADUATE I MAJORED IN PHYSICS. AS A GRADUATE STUDENT AT HARVARD I HAD THE TEMERITY TO ATTEMPT AN ORAL EXAMINATION IN ATOMIC PHYSICS. THE REDOUBTABLE PROFESSOR J.H. VAN VLECK WAS MY CHIEF EXAMINER. I² HAD NO DIFFICULTY IN TYING ME UP IN KNOTS IN SOME OF THE MORE ARCANE ASPECTS OF PERTURBATION THEORY. MY SUPERVISOR TOLD ME AFTERWARDS THAT VAN VLECK HAD REMARKED "HE DOESN'T KNOW MUCH, BUT WHAT HE DOES KNOW HE KNOWS WELL". IT WAS APPARENTLY ENOUGH TO SATISFY THE EXAMINERS!!

THAT WAS THE HIGH POINT OF MY PHYSICS CAREER, AND IT ESTABLISHES MY CREDENTIALS TO HAVE FORGOTTEN A FAIR AMOUNT OF PHYSICS. HOWEVER, I DO NOT WISH TO PRESS THE ANALOGY TOO FAR, FOR IT MIGHT IMPLY

- (1) FORGETTING SOME PHYSICS IS MY CHIEF CLAIM TO BE A GENTLEMAN
- (2) MOST OF THE MALES IN THIS AUDIENCE ARE NOT GENTLEMEN
- (3) PHYSICS HAS BECOME LIKE LATIN, CLASSICAL, PART OF OUR HERITAGE, BUT OF LITTLE CONSEQUENCE IN THE WORKADAY WORLD.

NONE OF THESE THINGS DO I WISH TO IMPLY. NONETHELESS, C.P. SNOW, IN HIS FAMOUS THESIS OF THE TWO CULTURES, CERTAINLY IMPLIED THAT "EVERY GENTLEMAN SHOULD HAVE FORGOTTEN THE SECOND LAW OF THERMODYNAMICS". IN THE OLD SENSE OF PHYSICS AS NATURAL PHILOSOPHY IT IS ESSENTIAL THAT EVERY EDUCATED MAN SHOULD HAVE FORGOTTEN A FAIR DOSE OF IT. PHYSICS IS THE PARADIGM SCIENCE OF THE NATURAL WORLD AROUND US, AND WITHOUT SOME APPRECIATION OF THE MODE OF THINKING OF MODERN PHYSICS, NO MAN WHO ASPIRES TO THE TITLE OF "EDUCATED" CAN POSSIBLY AFFORD TO BE INNOCENT OF ANY INSTRUCTION IN THIS KEY SUBJECT.

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IF THIS CONFERENCE, IF THIS UNIVERSITY CAN PLAY A PART IN RESTORING PHYSICS TO ITS CARDINAL ROLE IN THE SPHERE OF GENERAL EDUCATION, THEN OUR EFFORTS WILL NOT HAVE BEEN IN VAIN. I NOTICE WITH INTEREST THAT ONE OF YOUR SESSIONS IS DEVOTED TO EDUCATION. IN WELCOMING YOU HERE THIS EVENING I NATURALLY WISH YOU OUTSTANDING SUCCESS IN ALL YOUR DELIBERATIONS, BUT AS REGARDS THIS PARTICULAR QUESTION OF EDUCATION I COMMEND IT TO YOUR EMPHATIC ATTENTION.

WELCOME TO ALL OF YOU, AND MAY YOU HAVE BOTH AN ENJOYABLE AND A
PROFITABLE CONFERENCE.