

DEC. 26, 1991

DEAR PROFESSOR DATTA,

I THANK YOU FOR A COPY OF YOUR PAPER THE POTSDAM STORY. FROM YOUR PAPER I LEARNED, FOR THE FIRST TIME, SOME INTERESTING HISTORICAL FACTS ABOUT THE SUNY AT POTSDAM MATHEMATICS PROGRAM AND DEPARTMENT. ALSO, I LEARNED FROM READING YOUR PAPER MORE ABOUT THE TEACHING STRATEGIES OF THE SUNY POTSDAM MATHEMATICS FACULTY THAN I HAD LEARNED DURING MY 18 YEARS AS CHAIR OF THE MATHEMATICS DEPARTMENT.

MY PRIMARY GOAL AS CHAIR WAS TO HELP ESTABLISH THE MOST FAVORABLE CONDITIONS I COULD FOR STUDENTS TO LEARN AND TEACHERS TO TEACH. I ADOPTED A METHOD FOR DEVELOPING THE MATHEMATICS POTENTIAL OF STUDENTS AT POTSDAM WHICH HAD WORKED VERY WELL AT MORGAN STATE COLLEGE, BALTIMORE, MARYLAND AND IN NATIONAL SCIENCE FOUNDATION SUMMER INSTITUTES FOR SECONDARY TEACHERS OF MATHEMATICS. A TEAM OF MATHEMATICS FACULTY MEMBERS WITH ME AS A MEMBER WAS FORMED TO TEACH STUDENTS IN THEIR EARLY (FRESHMAN AND SOPHOMORE YEARS FOR UNDERGRADUATES - FIRST YEAR FOR GRADUATE STUDENTS) STUDY OF MATHEMATICS HOW TO READ MATHEMATICS LITERATURE WITH UNDERSTANDING AND TO BECOME INDEPENDENT LEARNERS. A PERSON SELECTED FOR THE TEAM WAS A PERSON WHO, IN MY OPINION, HAD A WARM RELATION WITH BEGINNING STUDENTS, STRONG LOYALTY TO THE DEPARTMENT AND COLLEGE.

THE TEAM WAS INFORMALLY FORMED BY THE WAY COURSES WERE ASSIGNED WITHOUT INFORMING FACULTY MEMBERS THAT THEY WERE MEMBERS OF THE TEAM. SINCE EACH MEMBER OF THE MATHEMATICS FACULTY WAS GIVEN AN OPPORTUNITY TO TEACH ACROSS THE MATHEMATICS CURRICULUM, EVERY EFFORT WAS MADE TO ADD AS MANY MEMBERS TO THE TEAM AS POSSIBLE.

SOMETIMES I WOULD TEACH A SECTION OF THE SAME COURSE WITH TEAM MEMBERS AND OFTEN I WOULD TEACH A FOLLOWING REQUIRED COURSE FOR THE MATHEMATICS MAJOR. FROM MY EARLIER EXPERIENCES AT MORGAN STATE COLLEGE AND IN NATIONAL SCIENCE FOUNDATION SUMMER INSTITUTES, IF TEAM MEMBERS WERE SUCCESSFUL IN REACHING THEIR GOAL, THEN I HAD CONFIDENCE THAT ANY CARING MATHEMATICS FACULTY MEMBER COULD EFFECTIVELY TEACH THE STUDENTS DEVELOPED BY THE TEAM. ALSO, THE STUDENTS WHO WERE DEVELOPED BY THE TEAM WOULD HELP US TEACH OTHER STUDENTS HOW TO LEARN MATHEMATICS AS PARTICIPANTS IN CLASS STUDY GROUPS AND AS TUTORS. THE INDICATED METHOD FOR DEVELOPING THE MATHEMATICS POTENTIAL OF STUDENTS WAS AS EFFECTIVE AT SUNY POTSDAM AS IT HAD BEEN AT MORGAN STATE COLLEGE.

AS AN ELEMENTARY GRADE STUDENT, I RECOGNIZED THAT I COULD READ MATHEMATICS LITERATURE WITH UNDERSTANDING WITH VERY LITTLE HELP FROM MY TEACHER. THIS ABILITY WAS VERY HELPFUL TO ME AS A HIGH SCHOOL, OR COLLEGE OR GRADUATE STUDENT. EARLY IN MY TEACHING CAREER I LEARNED HOW TO DEVELOP THIS ABILITY IN MANY OF MY STUDENTS AND TO HELP THEM BECOME INDEPENDENT LEARNERS.

I BEGAN MY COLLEGE TEACHING CAREER IN 1940 AT PRAIRIE VIEW A+M COLLEGE (NOW PRAIRIE VIEW UNIVERSITY), PRAIRIE VIEW, TEXAS. AS IS TRUE TODAY, COLLEGE AND UNIVERSITY MATHEMATICS PROFESSORS WERE COMPLAINING ABOUT THE POOR MATHEMATICS PREPARATION OF ENTERING COLLEGE STUDENTS. PLACEMENT TESTS WERE GIVEN IN ORDER TO ASSIGN STUDENTS TO COLLEGE MATHEMATICS CLASSES. DURING MY FIRST YEAR AS A COLLEGE TEACHER, I DEVELOPED THE STUDENT IN MY COLLEGE ALGEBRA CLASS WHO LATER EARNED HIS Ph.D. DEGREE IN MATHEMATICS AT THE UNIVERSITY OF MICHIGAN, AS YOU REPORT IN YOUR PAPER. HE WAS THE FIRST GRADUATE OF PRAIRIE VIEW A+M COLLEGE WHO LATER EARNED THE Ph.D. IN MATHEMATICS. PLACEMENT TESTS SCORES WERE THE REASON HE WAS ASSIGNED TO THE WRONG CLASS. I HAVE NEVER HAD CONFIDENCE IN PLACEMENT TEST SCORES FOR THE PURPOSE OF ASSIGNING STUDENTS TO COLLEGE MATHEMATICS CLASSES, UNLESS COLLEGE AND UNIVERSITY PROFESSORS DO NOT WISH TO USE THEIR CREATIVE ABILITIES^{AND TIME} TO DEVELOP TO A HIGH LEVEL THE MATHEMATICS POTENTIAL OF STUDENTS ADMITTED TO THEIR COLLEGE OR UNIVERSITY.

IN 1947 I JOINED THE MATHEMATICS FACULTY AT MORGAN STATE COLLEGE (NOW MORGAN STATE UNIVERSITY) BALTIMORE, MARYLAND. DURING THE 15 YEARS I SERVED ON THE FACULTY AT MORGAN STATE COLLEGE I CHaired THE MATHEMATICS DEPARTMENT. DURING MY FIRST YEAR ON THE FACULTY I LEARNED THAT MATHEMATICS MAJORS WERE COMPLETING ELEMENTARY CALCULUS IN THEIR JUNIOR AND SENIOR YEARS. PLACEMENT TESTS HAD INDICATED THAT MATHEMATICS PREPARATION OF ENTERING STUDENTS WAS SO POOR THAT STUDENTS WERE SPENDING MOST OF THEIR COLLEGE YEARS BEING PREPARED TO STUDY COLLEGE LEVEL MATHEMATICS COURSES, EVEN FOR MOST MATHEMATICS MAJORS. TWO YEARS AFTER I JOINED THE FACULTY WE PRODUCED EXAMPLES OF STUDENTS AT MORGAN STATE COLLEGE WHO SUCCESSFULLY COMPLETED ELEMENTARY CALCULUS AS FRESHMEN. WHEN I LEFT MORGAN STATE COLLEGE IN 1962, SOME OF MORGAN'S STUDENTS WERE STUDYING GRADUATE MATHEMATICS COURSES AFTER THEIR SOPHOMORE YEAR, AS INDICATED IN THE ENCLOSED MATERIALS. ALSO, AT MORGAN STATE COLLEGE DURING MY LAST 10 YEARS ON THE FACULTY, THE MATHEMATICS DEPARTMENT OFTEN HAD THE LARGEST NUMBER OF MAJORS ON THE DEAN'S LIST, AND MANY OF THE BEST STUDENTS AT THE COLLEGE MAJORED IN MATHEMATICS.

THE SUMMER BEFORE I JOINED THE MATHEMATICS FACULTY AT SUNY GENESEO DURING THE FALL OF 1962, I TAUGHT SUMMER SCHOOL AT REED COLLEGE, PORTLAND, OREGON. AS YOU PERHAPS KNOW, REED COLLEGE IS A HIGHLY SELECTIVE PRIVATE LIBERAL ARTS COLLEGE. I LEARNED THAT SOME STUDENTS AT REED COLLEGE

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ENROLLED IN A COURSE AS FRESHMEN WHICH DEVELOPED THE REAL NUMBER SYSTEM. THE TEXTBOOK FOR THE COURSE WAS WRITTEN BY ONE OF THEIR MATHEMATICS FACULTY MEMBERS.

DURING THE FALL SEMESTER OF 1962, I WAS ASSIGNED TO TEACH A SECTION OF PRE-CALCULUS AND THE TEXTBOOK FOR THE COURSE WAS PRINCIPLES OF MATHEMATICS BY C.B. ALLENDOERFER AND C.O. OAKLEY, MC GRAW-HILL BOOK COMPANY, INC. THE TEXTBOOK USED BY THE REED COLLEGE STUDENTS WAS A PAPERBACK BOOK AND DID NOT COST VERY MUCH MONEY IN 1962. MY STUDENTS IN PRE-CALCULUS WERE WILLING TO BUY THE BOOK ON THE REAL NUMBER SYSTEM BY ROBERTS AS A COMPLEMENT TO THE REGULAR TEXT. I TAUGHT THEM HOW TO READ THE BOOK ON THE REAL NUMBER SYSTEM WITH UNDERSTANDING. THEN, THEY COULD READ THE REGULAR TEXTBOOK WITHOUT MY HELP AND SOLVE ASSIGNED EXERCISES OUT OF THEIR REGULAR TEXTBOOK.

MY PRE-CALCULUS STUDENTS AND MY COLLEAGUES AT SUNY GENESEO WERE UNAWARE THAT MY PRE-CALCULUS STUDENTS WERE LEARNING MATHEMATICS AT A HIGHER LEVEL THAN MOST STUDENTS IN SUNY GENESEO MASTER OF SCIENCE IN SECONDARY MATHEMATICS PROGRAM IN 1962, WHERE CALCULUS III AND ELEMENTARY PROBABILITY AND STATISTICS (WITHOUT CALCULUS AS A PRE-REQUISITE) WERE GRADUATE COURSES IN THE PROGRAM.

ONE STUDENT WHO ACHIEVED WELL IN THE INDICATED PRE-CALCULUS COURSE HAD BEEN TOLD BY HIS HIGH SCHOOL TEACHER THAT HE COULD NOT LEARN MATHEMATICS. HE WAS SO INSPIRED BY HIS SUCCESS IN THIS COURSE THAT HE LATER EARNED A Ph.D. DEGREE IN MATHEMATICS EDUCATION WITH EMPHASIS ON SPECIAL EDUCATION. HE IS NOW ON THE FACULTY AT SUNY GENESEO.

AT EVERYWHERE I TAUGHT BEFORE JOINING THE MATHEMATICS FACULTY AT SUNY POTSDAM, THE COLLEGE ENROLLED MANY STUDENTS WITH THE ABILITY AND HIGH SCHOOL MATHEMATICS PREPARATION TO REACH A HIGH LEVEL OF ACHIEVEMENT IN MATHEMATICS. BY TEAMING WITH SOME MEMBERS OF THE MATHEMATICS FACULTY, WE INSPIRED MANY OF THESE STUDENTS TO DEVELOP THEIR POTENTIAL. WHEN I JOINED THE FACULTY AT SUNY POTSDAM, I FOUND ONE MAJOR PROBLEM. I KNEW THAT WE COULD DEVELOP FRESHMEN AND SOPHOMORES WHO COULD BE SUCCESSFUL IN STUDYING MATHEMATICS COURSES AT A HIGHER LEVEL THAN THE LEVEL STUDIED BY MOST OF THE STUDENTS IN THE MASTER OF SCIENCE IN SECONDARY MATHEMATICS PROGRAM AT SUNY POTSDAM IN 1969. I DID NOT FACE THIS PROBLEM AT MORGAN STATE COLLEGE, SINCE NO GRADUATE PROGRAMS WERE OFFERED AT MORGAN STATE COLLEGE DURING THE 15 YEARS I SERVED ON THE FACULTY. HOW COULD WE INSPIRE OUR CAPABLE UNDERGRADUATES TO ACHIEVE AT THEIR MAXIMUM LEVEL IN MATHEMATICS? IN ORDER TO OVERCOME THIS PROBLEM, I PROPOSED OUR BA/MA OR MS PROGRAMS DURING 1969-70.

I ACKNOWLEDGE THAT BETTER HIGH SCHOOL PREPARATION IN MATHEMATICS OF ENTERING COLLEGE STUDENTS WOULD BE DESIRABLE. HOWEVER, IN MY OPINION, COLLEGE AND UNIVERSITY PROFESSORS, WITH ADEQUATE SUPPORT FROM ADMINISTRATIONS, CAN INSPIRE MANY COLLEGE STUDENTS TO REACH A HIGH LEVEL OF ACHIEVEMENT IN MATHEMATICS IF PROFESSORS WOULD USE THEIR CREATIVE ABILITIES AND TIME TO DO SO. IF THEY WOULD DO THIS, I CONJECTURE THAT OVER TIME THE HIGH SCHOOL PREPARATION OF ENTERING COLLEGE STUDENTS WOULD IMPROVE.

WE CONSIDERED HIGH SCHOOL MATHEMATICS TEACHERS AS MEMBERS OF OUR TEAM BY MAKING MAXIMUM EFFORT TO CONTINUE THE DEVELOPMENT ^{OF} THE MATHEMATICS POTENTIAL OF STUDENTS THESE HIGH SCHOOL TEACHERS PREPARED FOR OUR COLLEGE. I BELIEVE THAT THESE FORMER HIGH SCHOOL TEACHERS APPRECIATED OUR CARING FOR THEIR STUDENTS. FOR EXAMPLE, YOU MAY NOTE THAT THE BACHELOR'S IN MATHEMATICS IN THE CLASSES OF 1985, 1986, AND 1987 AT SUNY POTSDAM (AS SHOWN IN THE MATHEMATICS NEWSLETTERS FOR THESE YEARS) GRADUATED FROM ABOUT 250 DIFFERENT HIGH SCHOOLS, OVER 100 HIGH SCHOOLS HAD MORE THAN ONE GRADUATE, AND ONE HIGH SCHOOL HAD 14 GRADUATES. EACH YEAR THE MATHEMATICS NEWSLETTER WAS SENT TO A HIGH SCHOOL IF A BACHELOR'S IN MATHEMATICS AT SUNY POTSDAM FOR A GIVEN YEAR WAS ALSO A FORMER GRADUATE OF THE HIGH SCHOOL.

WE EMPHASIZED THE LIBERAL ARTS NATURE OF A MATHEMATICS EDUCATION. OVER ONE THIRD YEAR PERIOD (1984, 1985, 1986), OUR BACHELOR'S IN MATHEMATICS COMPLETED SECOND MAJORS (ONLY SOME COMPLETED SECOND MAJORS) IN THE FOLLOWING LIBERAL ^{ARTS} DEPARTMENTS: ANTHROPOLOGY, ART, BIOLOGY, CHEMISTRY, COMPUTER SCIENCE, DANCE, DRAMA, ECONOMICS, ENGLISH, HISTORY, PHILOSOPHY, PHYSICS, AND SPANISH.