SMC 51007 COMMENCEMENT ADDRESS-COLLEGE OF ENGINEERING

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THE WOMAN ENGINEER IN OUR CHANGING WORLD

THE WORLD WE LIVE IN IS CHANGING. SOCIOLOGICAL CHANGES ARE TAKING PLACE IN AREAS OF THE EARTH THAT WERE UNKNOWN OR INACCESSIBLE TO MOST OF US A FEW SHORT YEARS AGO. TODAY THRU IMPROVED TRANSPORTATION AND COMMUNICATION WE ARE AS KNOWLEDGEABLE OF HAPPENINGS IN DISTANT LANDS AS WE ARE ABOUT WHAT HAPPENS IN OUR OWN NEIGHBORHOOD. SCIENTIFIC CHANGES REPORTED DAILY IN ALL FORMS OF NEWS MEDIA RUN THE GAMUT FROM ADVANCES IN MEDICAL SCIENCE THAT HAVE LENGTHENED OUR LIVES TO THE TECHNOLOGICAL BREAKTHROUGHS THAT HAVE IMPROVED THE MATERIAL THINGS IN OUR LIVES.

COUPLED WITH THESE CHANGES IN OUR WAY OF LIVING ARE THE DEMANDS TO FEED, CLOTHE, SHELTER, EDUCATE AND MINISTER TO THE SPIRITUAL NEEDS OF THE EVER GROWING WORLD POPULATION. IN 1962 THERE WERE 3.135 BILLION PEOPLE ON EARTH. THE YEARLY GROWTH RATE IS ABOUT 2.1 PERCENT OR 63 MILLION PEOPLE. IN THE UNITED STATES ALONE THERE ARE PRESENTLY OVER 195 MILLION PEOPLE AND THIS FIGURE IS EXPECTED TO RISE TO OVER 225 MILLION BY 1975. WITH A STEADILY INCREASING POPULATION ADDITIONAL

DEMANDS FOR ALL TYPES OF PROFESSIONALLY TRAINED PEOPLE FOR MANY years TO COME IS ANTICIPATED.

AN UPWARD SHIFT IN THE AGE COMPOSITION OF OUR POPULATION WILL PUSH THE DEMAND FOR MORE MEDICAL PEOPLE TO TAKE CARE OF HEALTH PROBLEMS AND MORE TECHNICAL PEOPLE WILL BE NEEDED TO DESIGN SPECIAL HOUSING AND EQUIPMENT FOR THE COMFORT OF THE AGING. THE INCREASED COMPLEXITY OF OUR MANUFACTURING AND BUSINESS TECHNIQUES WILL REQUIRE A CONTINUALLY INCREASING NUMBER OF PROFESSIONAL PEOPLE AND SINCE ALL OF THESE PEOPLE MUST BE TAUGHT THESE SKILLS MORE EDUCATORS WILL BE NEEDED TO TRAIN THEM. PROJECTED SOCIOECONOMIC PROGRESS, IN SUCH REALMS AS URBAN RENEWAL, IMPROVEMENT OF TRANSPORTATION SYSTEMS, ENHANCING THE BEAUTY OF THE LAND, HARNESSING THE OCEAN, CONQUERING OUTER SPACE AND OUR COMMITMENTS ON A WORLD WIDE BASIS, WILL ADD TO THE NUMBERS OF PROFESSIONAL PEOPLE REQUIRED IN THE COMING YEARS.

ACCORDING TO THE BUREAU OF LABOR STATISTICS TO ATTAIN THESE GOALS A 40% OVERALL INCREASE IN OUR APPROXIMATELY 2 MILLION TEACHERS, 1 MILLION ENGINEERS, 300 THOUSAND PHYSICIANS, 250 THOUSAND LAWYERS AND 100 THOUSAND DENTISTS WILL BE REQUIRED OVER THE NEXT DECADE..TO ACHIEVE A 40% INCREASE IN THE NUMBER OF ENGINEERS ALONE WILL REQUIRE A MINIMUM AVERAGE OF

40,000 ENGINEERING GRADUATES EACH YEAR IN THE NEXT DECADE AND THIS WILL NOT ALLOW FOR ATTRITION IN THE PRESENT ENGINEERING FORCE. ATTRITION WILL RAISE THE NUMBER OF ENGINEERS REQUIRED TO AN AVERAGE OF 60,000 PER YEAR AND THESE FIGURES PROBABLY DO NOT TAKE INTO CONSIDERATION THE TREND TOWARD EARLIER RETIREMENTS.

PRESENTLY WE ARE GRADUATING APPROXIMATELY 35,000 ENGINEERS PER YEAR. THIS IS FAR SHORT OF OUR OBJECTIVE AND ACCORDING TO THE ENGINEERING MANPOWER COMMISSION THIS CONDITION IS NOT EXPECTED TO IMPROVE SUBSTANTIALLY IN THE NEXT FEW YEARS WHEN GRADUATING CLASSES OF CLOSE TO 50,000 ARE PREDICTED. IT BEHOOVES US TO TRY TO FIND A WAY TO CLOSE THE GAP BETWEEN THE CURRENT ESTIMATES OF ENGINEERS GRADUATING IN THE NEXT DECADE AND THE NUMBER NEEDED TO ATTAIN OUR GOALS.

WE ARE TOLD THAT ONLY 15 TO 20 PERCENT OF OUR POPULATION HAS THE MENTAL AND PSYCHOLOGICAL CAPABILITY FOR THE PROFESSIONAL OCCUPATIONS. TRADITIONALLY THE PROFESSIONAL FIELDS, WITH THE EXCEPTION OF TEACHING BELOW THE COLLEGE LEVEL, HAVE BEEN THE DOMAIN OF MEN. PRESENTLY ONLY 7% OF THE DOCTORS, 3% OF THE LAWYERS, 2% OF THE DENTISTS, AND LESS THAN 1% OF THE ENGINEERS ARE WOMEN. SINCE THERE IS NO APPRECIABLE INTELLIGENCE DIFFERENCE BETWEEN THE SEXES, SIMPLE LOGIC SUGGESTS THAT

WE ARE NOT UTILIZING ALL OUR PROFESSIONAL POTENTIALS.

EARLY STUDIES FOUND THAT GENERALLY MEN WERE MORE LIKELY TO BE INTERESTED IN SCIENCE AND MECHANICAL THINGS WHILE WOMEN SHOWED MORE INTEREST IN PEOPLE AND SOCIAL WORK. MORE RECENT BASIC STUDIES INDICATE THESE FINDINGS MAY BE A RESULT OF SOCIAL TRAINING, RATHER THAN APTITUDE. TODAY AS THE BROAD FACE OF ENGINEERING CHANGES TO A HIGHER LEVEL OF TECHNOLOGY, PROFICIENCY IN MECHANICAL APTITUDES IS NOT AS NECESSARY AN ATTRIBUTE. TODAY'S STUDENT MUST BE GOOD AT MATHEMATICS AND HAVE A GOOD ANALYTICAL MIND.

A MEDIAN STUDENT WHETHER MALE OR FEMALE WILL NOT SUCCEED IN ENGINEERING. RESULTS OF BASIC APTITUDE TESTS GIVEN TO HIGH SCHOOL STUDENTS REVEAL 6.3% OF THE BOYS AND 4.2% OF THE GIRLS SHOWED AN APTITUDE FOR ENGINEERING, SO THEORETICALLY 40% OF OUR ENGINEERING MANPOWER COULD BE WOMANPOWER.

ANOTHER POINT THAT SHOULD BE EMPHASIZED IS THAT STUDIES SUGGEST THAT AS A MINORITY GROUP IN THE ENGINEERING WORLD WOMEN MAY HAVE A PARTICULAR CONTRIBUTION TO MAKE CAUSED IN PART BY THEIR SLIGHTLY DIFFERENT WAY OF LOOKING AT PROBLEMS. IF WE DENY THIS MISSING PERCENTAGE OF TECHNICAL POTENTIAL WE MAY BE LOSING MORE THAN WE REALIZE.

AS ONE OF OUR WOMEN ENGINEERS HAS PUT IT SO SUCCINCTLY: "THERE'S NOTHING INHERENTLY FEMININE ABOUT MIXING A GIVEN BATCH OF MATERIALS, EXPOSING IT TO A DEFINITE TEMPERATURE FOR A DEFINITE TIME AND PRODUCING A CAKE. THERE IS NOTHING INHERENTLY MASCULINE IN MIXING A BATCH OF MATERIALS, EXPOSING IT TO A DEFINITE TEMPERATURE FOR A GIVEN TIME AND PRODUCING IRON CASTINGS. I'VE DONE BOTH, AND FIND THEM SATISFYING OCCUPATIONS".

HISTORICALLY, THE FIRST WOMAN ENGINEER OF RECORD IN THE U.S., WAS EDITH GRISWOLD, WHO AFTER STUDYING ENGINEERING IN THE NEW YORK CITY NORMAL COLLEGE, ENTERED THE PROFESSION IN 1886 AS A DRAFTSWOMAN, SPECIALIZING IN PATENT OFFICE DRAWINGS. IN 1893, OHIO STATE UNIVERSITY GRANTED THE FIRST DEGREE IN ENGINEERING TO A WOMAN, A MASTERS IN ELECTRICAL ENGINEERING, TO BERTHA LAMME.

IN THE YEARS BETWEEN 1894 AND 1905, SIX MORE YOUNG LADIES HAVE BEEN RECORDED AS RECEIVING ENGINEERING DEGREES AND JOINING THE ENGINEERING RANKS IN ITS VARIOUS FACETS SUCH AS MINING, STRUCTURAL, CHEMICAL AND CIVIL ENGINEERING. DURING WORLD WAR I AND UP UNTIL 1920, TWELVE MORE WOMEN ARE KNOWN TO HAVE BEEN GRANTED DEGREES AND WERE EMPLOYED AS ENGINEERS. BETWEEN 1920 AND 1925, THE LAST OF THE WOMEN ENGINEERS

CONSIDERED TO BE PIONEERS: ENTERED THE FIELD. AMONG THIS GROUP WERE: DR. LILLIAN GILBRETH, INDUSTRIAL ENGINEERING; DR. EDITH CLARK, ELECTRICAL ENGINEERING, OLIVE DENNIS; DESIGNER OF RAILROAD CARS; AND ELSIE EAVES, CIVIL ENGINEERING. SINCE 1925 NUMEROUS OTHER WOMEN HAVE BECOME ENGINEERS. FROM THE FEW HANDFULS IN THE 20'S AND 30'S, THE TOTAL ROSE SHARPLY IN THE 40'S DURING WORLD WAR II, WHEN THE NEED FOR WOMEN BY INDUSTRY IN ALL FIELDS OF ENGINEERING ENDEAVOR WAS EMPHASIZED. THE TRAINING OF MANY OF THESE WOMEN ENGINEERS WAS SUBSIDIZED BY INDUSTRY TRYING TO FILL THE VOID IN THEIR DEPLETED TECHNICAL STAFFS. AFTER WORLD WAR II, YOUNG WOMEN CONTINUED TO ENTER ENGINEERING SCHOOLS IN A PROPORTION OF AROUND ONE HALF OF ONE PERCENT OF THE TOTAL ENROLLMENT. DURING THE EARLY POST WAR PERIOD, AN AVERAGE OF 125 WOMEN GRADUATED EACH YEAR, WITH GREATER NUMBERS GRADUATING IN THE YEARS THAT THE NUMBER OF MALE GRADUATES WAS ALSO HIGH. MORE RECENT FIGURES SHOW THAT IN 1961-62, OF THE 34,735 GRADUATES RECEIVING FIRST DEGREES FROM ENGINEERING SCHOOLS, .36% WERE WOMEN. IN 1963-64, THE FIGURES WERE 35,226 GRADUATES WITH .45% WOMEN. EACH YEAR ON THE GRADUATE LEVEL AN AVERAGE OF 42 MASTERS OR DOCTORATES IN ENGINEERING WERE GRANTED TO WOMEN.

WHILE THESE DATA ARE ENCOURAGING THEY DO NOT TELL THE PRESENT STORY COMPLETELY. ENROLLMENT IN THE ENGINEERING SCHOOLS IS CURRENTLY HIGHER FOR BOTH MEN AND WOMEN WITH AN INCREASE OF 5% MAINLY ATTRIBUTABLE TO THE POPULATION EXPLOSION. THE TOTAL ENROLLMENT PRESENTLY IS AROUND 255,000 STUDENTS IN GRADUATE AND UNDERGRADUATE PROGRAMS OF WHICH .7% ARE WOMEN. THE NUMBERS ARE STILL SMALL BUT THEY DO REPRESENT A 50% INCREASE IN ENROLLMENT BY WOMEN. SINCE ONLY PART OF THIS CAN BE CREDITED TO THE POPULATION EXPLOSION WE IN THE SOCIETY OF WOMEN ENGINEERS LIKE TO THINK THAT AT LEAST SOME OF THIS INCREASE IN FEMALE STUDENTS IS PARTLY A RESULT OF OUR PROFESSIONAL GUIDANCE AND EDUCATION PROGRAMS IN THE PAST DECADE.

OFTEN YOUNG WOMEN CONSIDERING A COLLEGE EDUCATION ARE TAUNTED WITH THE EPITHET "OH YOU'LL JUST GET MARRIED AND THAT WILL BE THE END OF YOUR EDUCATION". THERE ARE SOME VERY INTERESTING STATISTICS TO PROVE THE GENERAL FALLACY OF THIS STATEMENT. BUT MORE SPECIFICALLY TO LEARN ABOUT WOMEN ENGINEERING GRADUATES THE SOCIETY OF WOMEN ENGINEERS IN 1963 CONTACTED THE ECPD ACCREDITED SCHOOLS FOR INFORMATION ON THEIR WOMEN GRADUATES. FROM THEM WE LEARNED THAT THEY HAD GRADUATED SLIGHTLY OVER 2500 WOMEN. FROM A SAMPLE OF 600 OF THESE WOMEN WE FOUND THE FOLLOWING:

YES THEY GOT MARRIED, 80% DID SO AND MOST RAISED FAMILIES WITH AN AVERAGE OF 2 CHILDREN BUT 4,5, AND 6 CHILDREN WERE NOT UNCOMMON. OF THE TOTAL SAMPLE 43% WERE EMPLOYED FULL TIME AND 10% PART TIME. THE REMAINDER, WHO WERE NOT EMPLOYED, WERE MOSTLY THOSE WITH SMALL CHILDREN. NEARLY ALL HAD WORKED AND OF THOSE NOT WORKING AT THE TIME OF THE SURVEY ALMOST 70% WERE PLANNING TO REENTER THE FIELD. AS AN ASIDE TO THE YOUNG MEN HERE - 55% OF THE HUSBANDS WERE ENGINEERS OR SCIENTISTS. ON THE PROFESSIONAL SIDE IN CONTRAST TO THE PERSONAL - 39% HAVE DONE GRADUATE WORK, 40% BELONG TO PROFESSIONAL TECHNICAL SOCIETIES, 10% ARE REGISTERED PROFESSIONAL ENGINEERS AND 5% ARE ENGINEERS-IN-TRAINING.

ONCE A WOMAN ENGINEER HAS GRADUATED AND IS OUT WORKING, WHAT FIELDS AND TYPES OF WORK DOES SHE DO? IN GENERAL SHE IS SIMILAR TO HER MALE COUNTERPART. THE MOST POPULAR FIELDS, IN DESCENDING ORDER, WERE INDUSTRIAL, ELECTRICAL, AERONAUTICAL, CIVIL AND CHEMICAL ENGINEERING.

THE NEWER, SO CALLED, GLAMOUR FIELD OF AERONAUTICS, NUCLEAR ENERGY AND SPACE APPLICATIONS OF CERAMIC MATERIALS HAVE ATTRACTED THE GREATEST NUMBER OF WOMEN IN RELATION TO THEIR SIZE. THE EXPLANATION HERE IS TWOFOLD. FIRST THESE NEWER FIELDS APPEAR TO BE MORE INTERESTING AND

CHALLENGING AND SECONDLY THESE FIELDS ARE SO NEW AND HAVE GROWN SO FAST THAT IN THEIR GREAT NEED TO DO THE JOB QUICKLY THEY HAVE NOT INHERITED THE ENTRENCHED PREJUDICES OF THE OLDER DISCIPLINES.

THE TYPES OF WORK PERFORMED BY WOMEN ENGINEERING GRADUATES IS AS FOLLOWS:

EXECUTIVE, MANAGEMENT POSITIONS - 3.4%

RESEARCH AND DEVELOPMENT - 22%

DESIGN, PRODUCTION, APPLICATION ENGINEERING - 28%

INFORMATION, TECHNICAL WRITING, TECHNICAL LIBRARIAN - 8%

GOVERNMENT ENGINEERING - 11% (CITY, STATE, AND FEDERAL)

TEACHING - 10%

PRIVATE CONSULTING FIRMS - 6%

TECHNICIAN LEVEL ONLY - 5%

MISCELLANEOUS, NON-TECHNICAL - 6%

WITH THIS INFORMATION AS BACKGROUND YOU CAN SEE THAT WOMEN CAN BE AND ARE SUCCESSFUL ENGINEERS.

PHYSICAL STAMINA IS NO LONGER A LIMITATION TO THE WOMAN WHO WANTS TO GO INTO ENGINEERING. THERE ARE SOME WHO DO WORK AT JOBS THAT ARE PHYSICALLY HAZARDOUS BUT IT IS THROUGH CHOICE RATHER THAN NEED. THE POPULAR IMAGE OF A DRAB, MASCULINE, AGGRESSIVE FEMALE WITH NO MEN IN HER

LIFE IS STRICTLY NOT REPRESENTATIVE. WE DON'T DENY THAT THERE MIGHT BE A FEW WHO WOULD FIT THIS IMAGE BUT IN CONTRAST WE OFFER YOU MARLENE SCHMIDT AN ELECTRONICS ENGINEERS AND MISS UNIVERSE IN 1961. YOU WILL FIND THE SAME CONTRAST AMONG NURSES, TEACHERS, AND HOUSEWIVES.

TO DENY THAT WOMEN ENGINEERS HAVE NOT ENCOUNTERED DISCRIMINATION AND PREJEDICE OVER THE YEARS WOULD BE UNTRUE. THE PIONEERS IN THE FIELD WERE PARTICULARLY EXPOSED TO IT. TO DENY THAT IT DOES NOT EXIST TODAY WOULD ALSO BE UNTRUE, BUT TODAY IT ONLY EXISTS IN SMALL POCKETS WITHIN SOME BRANCHES OF ENGINEERING, WITHIN SOME COMPANIES AND WITH SOME SUPERVISORS. AS I LIKE TO REMARK WHEN QUESTIONED ABOUT THE SUBJECT "SOME MEN JUST DON'T LIKE WOMEN, IT DOESN'T MAKE ANY DIFFERENCE WHETHER SHE IS AN ENGINEER OR A SECRETARY".

GENERALLY, HOWEVER, ACCEPTANCE OF WOMEN ENGINEERS BY INDUSTRY IS EXCELLENT. AS FAR BACK AS TEN YEARS AGO BETTER THAN 65% OF THE EMPLOYERS POLLED BY THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS WERE WILLING TO HIRE WOMEN ENGINEERS. THAT THE CLIMATE IS GETTING INCREASINGLY BETTER IS INDICATED BY THE AFFIRMATIVE REPLAY OF 70% OF THE ENGINEERING GRADUATES TO THE QUESTION " DO YOU FEEL YOU HAVE EVERY OPPORTUNITY FOR PROFESSIONAL ADVANCEMENT?" MY OWN PERSONAL EXPERIENCE HAS BEEN THAT THE

PEOPLE I HAVE WORKED WITH AND THE COMPANIES I HAVE WORKED FOR DID NOT MAKE ANY MORE THAN THE OBVIOUS DISTINCTIONS OF THE FACT THAT I WAS A WOMAN. IN FACT MANY TIMES I THINK IT HAS BEEN TO MY ADVANTAGE TO BE A WOMAN. IT MADE ME STAND OUT IN THE CROWD.

NOT THE LEAST INDICATION OF THE ENCOURAGEMENT GIVEN TO WOMEN ENGINEERS BY INDUSTRY HAS BEEN THE ACTIVE SUPPORT THAT IT HAS GIVEN TO THE SOCIETY OF WOMEN ENGINEERS SINCE ITS FOUNDING OVER 15 YEARS AGO.

THE FEDERAL GOVERNMENT HAS GENERALLY BEEN LESS DISCRIMINATORY THAN INDUSTRY WHEN IT COMES TO HIRING WOMEN ENGINEERS. SINCE 1963 AND MORE RECENTLY AFTER THE PASSAGE OF THE ANTI-DESCIMINATION LAW PROMOTIONS FOR WOMEN ENGINEERS IN GOVERNMENT JOBS HAVE BEEN MORE NUMEROUS. IN LATE YEARS THE GOVERNMENT HAS ALSO BEEN VERY ACTIVE IN TRYING TO ENCOURAGE QUALIFIED YOUNG WOMEN TO BECOME ENGINEERS. THIS HAS BEEN ACCOMPLISHED BOTH THROUGH CAREER GUIDANCE INFORMATION PUBLISHED BY THE U.S. DEPT. OF LABOR AND BY THE OFFICE OF EMERGENCY PLANNING SETTING UP AND PARTICIPATING IN SEVERAL CONFERENCES ON WOMEN IN ENGINEERING AT SCATTERED LOCATIONS THROUGHOUT THE COUNTRY.

I THINK PERHAPS THE SEGMENT OF THE ENGINEERING PICTURE WHERE THE BIGGEST CHANGE IN ATTITUDE TOOK PLACE AND IS PRESENTLY THE MOST ENTHAUSIASTIC SUPPORTER OF WOMEN ENGINEERS IS IN THE ENGINEERING COLLEGES. IN THE PAST FEW YEARS ENGINEERING COLLEGES HAVE BEEN THE HOST TO THE CONFERENCES ON WOMEN IN ENGINEERING MENTIONED PREVIOUSLY. THEY HAVE BEEN CONCERNED WITH THE NEED FOR EDUCATING THE ENGINEERS NEEDED IN THE YEARS AHEAD. THEY SAW, PERHAPS RELUCTANTLY, THAT ENCOURAGING YOUNG WOMEN TO ENTER ENGINEERING WAS ONE WAY TO PREVENT A SHORTAGE OF QUALIFIED ENGINEERS, SINCE HERE WAS AN UNTAPPED POOL OF TALENT THAT SHOULD BE MOTIVATED TO BECOME ENGINEERS. TO AROUSE THE ENTHUSIASM OF HIGH SCHOOL GIRLS MANY COLLEGES INCLUDING THE UNIVERSITY OF UTAH HAVE HELD CAREER DAYS TO ACQUAINT THE GIRLS WITH ENGINEERING. THAT THEY HAVE HAD SOME SUCCESS IS EVIDENT FROM THE STATISTICS QUOTED PREVIOUSLY.

SEVERAL OTHER GROUPS HAVE ENCOURAGED YOUNG WOMEN TO BECOME ENGINEERS OFTENTIMES IN CONNECTION WITH A COMBINATION OF INDUSTRY, GOVERNMENT AND EDUCATION AND SOMETIMES SEMI-INDEPENDANTLY. ORGANIZATIONS THAT COME TO MIND ARE: THE JETS - THE JUNIOR ENGINEERING TECHNICAL SOCIETY WITH HIGH SCHOOL AGE PROGRAMS, REGIONAL FAIRS AND NATIONAL APTITUDE TESTS:

ISF- INTERNATIONAL SCIENCE FAIRS WITH SCIENCE FAIRS ON A LOCAL, REGIONAL AND INTERNATIONAL LEVEL: THE PROFESSIONAL ENGINEERING SOCIETIES THROUGH CAREER GUIDANCE PROGRAMS: AND JESSI-JUNIOR ENGINEERS AND SCIENTISTS SUMMER INSTITUTE WITH SUMMER PROGRAMS ON COLLEGE CAMPUSES.

ALL OF THESE PROGRAMS ARE HAVING THEIR EFFECT BUT THE GENERAL PUBLIC STILL IS NOT INFORMED ON WHAT AN ENGINEER DOES. THEY MAY STILL HAVE THE IMAGE OF THE CIVIL ENGINEER IN ROUGH CLOTHES AND HIP BOOTS AT A CONSTRUCTION SIGHT OF A DAM OR BRIDGE, OR THE COMPLETELY ERRONEOUS ONE OF A RAILROAD ENGINEER. WE KNOW, THAT MOST MODERN ENGINEERING INVOLVES MANY ENGINEERS IN LARGE COMPANIES ALL WORKING ON SMALL PARTS OF A BIGGER PROBLEM. WE KNOW, THAT THIS REQUIRES A GOOD PART OF OUR TIME SPENT DISCUSSING OUR WORK WITH OTHER PEOPLE, INVESTIGATING THE POSSIBILITIES, GATHERING INFORMATION AND GIVING OR GETTING INSTRUCTIONS. TODAY MOST ENGINEERING JOBS ARE OFFICE JOBS SINCE ENGINEERING IS AN INTELLECTUAL PROFESSION, BUT WHEN REQUIRED TO BE AT A CONSTRUCTION SIGHT THE ENGINEER IS THERE TO SEE THAT THINGS ARE DONE RIGHT NOT TO PERSONALLY OPERATE THE EQUIPMENT.

I BELIEVE THAT WHEN THE GENERAL PUBLIC REALLY UNDERSTANDS WHAT ENGINEERING IS AND WHAT AN ENGINEER DOES MORE YOUNG WOMEN WILL BE ENCOURAGED TO ENTER ENGINEERING AND ALLEVIATE THE PROJECTED SHORTAGES IN THE FIELD.

IT IS MY CHALLENGE TO YOU WHO ARE STARTING OUT ON YOUR CAREERS AS ENGINEERS TO MAKE ENGINEERING A VITAL, INTERESTING IMAGE TO EVERYONE YOU MEET; TO ENCOURAGE ALL YOUNG PEOPLE, MALE AND FEMALE, TO DEVELOP THEIR ENGINEERING TALENT.

IF WE ARE TO CLOSE THE GAP BETWEEN THE PRESENTLY PROJECTED NUMBER OF ENGINEERING GRADUATES AND THE NUMBER OF GRADUATES THAT IT IS PREDICTED WE WILL NEED WE MUST ENCOURAGE YOUNG PEOPLE TO MAKE ENGINEERING THEIR CAREER. A GIANT STEP TOWARDS CLOSING THE GAP WOULD BE ACCOMPLISHED IF QUALIFIED YOUNG WOMEN WOULD CHOOSE ENGINEERING AS A CAREER.