

Last nite P.T.A

SOME REMARKS FOR

HUBERT H. HUMPHREY

FOR

NATIONAL ACADEMY OF ENGINEERING

Washington, D.C.

MAY 7, 1973

Dean MarshallDean PierreDr MulliganDr Wilburn - Acad of SciencesO T A - Research

Space Council

Marine Sciences

and WENT

001637
✓ Progress in Science, Technology, Education
+ ~~Civil Rights~~ in 1960's

WE HAVE MADE GREAT PROGRESS IN THE CIVIL RIGHTS
AREA IN THE LAST DECADE. (MOST DRAMATIC, AND IMPORTANT,
HAS BEEN RELATED TO JOBS. (EQUAL OPPORTUNITY FOR DECENT
JOBS AND INCOME IS PREREQUISITE FOR FULL PARTICIPATION
IN OTHER AREAS OF SOCIETY.

IN ONE AREA, HOWEVER, MINORITY PROGRESS HAS BEEN
RELATIVELY SLOW--THE UPPER PROFESSIONAL AND MANAGERIAL
RANKS. (THIS, I BELIEVE, IS THE PRIME SECOND GENERATION
CIVIL RIGHTS PROBLEM OF THE 1970's. UNLESS IT IS
ADDRESSED, INEQUALITY IN OUR SOCIETY WILL GROW,

(ENGINEERING TRAINING IS A KEY REQUIREMENT FOR
MANY UPPER LEVEL PROFESSIONAL AND MANAGERIAL POSITIONS
IN BUSINESSES AND GOVERNMENT. (THE PARTICIPATION RATE
OF MINORITIES IN THE ENGINEERING FIELD IS WOEFULLY
INADEQUATE:

former
V.P. of
ISEC -
J. Stanford
Smith

shamefully and
detrimentally

✓ 42,000 Engineers graduated in 1971
 only 409 Blacks.
 Handful of other minorities
 & women - 2-

Women - less than
 10% of
 Scientists
 +
 engineers

--98% OF U. S. ENGINEERS ARE WHITE MALES, A

GROUP WHICH COMPRISES ONLY 42% OF OUR POPULATION;

--~~ETHNIC MINORITIES~~, A GROUP OF 36 MILLION
 Blacks, Indians, Chinese + Asians
 AMERICANS, CONTRIBUTE LESS THAN 2% OF THE U. S.

SCIENTIFIC AND TECHNICAL PERSONNEL. -

Women represent
 less than 1%
 of Engineers

--OF 1.1 MILLION ENGINEERS IN 1971, ONLY 7,300,

OR .7% WERE BLACK.

- out of 230,000 students enrolled
 in Engineering in 1970, only 1 out of 100
 black

ACCORDING TO THE EXPERTS, THIS COUNTRY IS HEADED

FOR A SEVERE SHORTAGE OF ENGINEERS IN MANY SPECIALTIES

WITHIN THE NEXT FEW YEARS. IF THE QUALITY OF LIFE

FOR A GROWING POPULATION IS TO BE IMPROVED, THIS GAP

MUST BE FILLED. THIS COULD BE DONE IN A NUMBER OF

WAYS. (HOWEVER, IT WOULD REALLY BE ~~irresponsible~~ WITH THIS

TIMELY GAP IN THE SUPPLY OF ENGINEERS, IF WE FAILED

TO FILL A LARGE PART OF IT WITH MINORITIES AND WOMEN.

a must!

OF COURSE, THIS WILL NOT HAPPEN ON ITS OWN.

a massive

CONCERTED EFFORT BY INDUSTRY, GOVERNMENT, AND OUR

EDUCATIONAL COMMUNITY IS CALLED FOR.

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WHY SHOULD WE TRY TO MEET THE ANTICIPATED
DEMAND WITH MINORITIES? SOME OF THE MOST IMPORTANT
REASONS ARE:

--TO REDUCE ECONOMIC DISCRIMINATION AND PROVIDE
POTENTIAL MANAGERIAL AND PROFESSIONAL LEADERS IN THE
FUTURE FROM OUR MINORITY GROUPS; -

*It takes 15 to 20 years!
to rise to Top positions!*

--TO TAP A VALUABLE SOURCE OF HUMAN CAPITAL
THAT HAS NOT BEEN FULLY UTILIZED IN THE PAST, PAR-
TICULARLY IN ENGINEERING AND THE HARD SCIENCES;

--TO PROVIDE A CADRE OF TECHNICALLY TRAINED
MINORITY PEOPLE TO HELP FIND TECHNOLOGICAL SOLUTIONS
TO THE SOCIO/ECONOMIC PROBLEMS OF THE CENTRAL CITIES,
WHERE ^{many} ~~MOST~~ OF THESE PEOPLE HAVE THEIR ROOTS;

--TO PREVENT THE RECURRENCE OF A "BRAIN DRAIN"
OF ENGINEERS FROM FOREIGN COUNTRIES WHERE THEIR
SKILLS ARE URGENTLY NEEDED; AND

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--TO INCREASE THE NUMBER OF NON-WHITE AMERICANS
AVAILABLE TO RESPOND TO THE TECHNOLOGY NEEDS OF THE
THIRD WORLD,

↳ MOST AGREE THAT THE PROBLEM OF GETTING MORE
MINORITY ENGINEERS INTO INDUSTRY, EDUCATION AND GOVERN-
MENT IS A SUPPLY PROBLEM, NOT ONE OF DEMAND ↳ WHILE
EQUAL OPPORTUNITY LEGISLATION HAS SUCCEEDED IN
INDUCING DEMAND, IT IS NOT BEING MET BY THE EDUCA-
TIONAL ESTABLISHMENT.

↳ A NUMBER OF RELATED PROBLEMS HAVE BEEN POINTED
TO AS THE REASON FOR THE LACK OF TRAINED MINORITY
ENGINEERS IN THE U. S. SOME OF THE MOST IMPORTANT
SEEM TO ME TO BE:

--INADEQUATE PREPARATION FOR ENGINEERING SCHOOLS
BY INNER CITY PUBLIC SCHOOLS (POOR FACILITIES,
CURRICULA IN MATH AND SCIENCE, QUALITY OF TEACHERS,
GUIDANCE COUNSELING, ETC.);

X study by
Fred
Crossland
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--MINORITIES HAVE BEEN GENERALLY UNAWARE OF
OPPORTUNITIES IN THE ENGINEERING PROFESSION;

all to
--FEW SUCCESSFUL ENGINEERING LEADERS FROM THE
MINORITY COMMUNITY TO SERVE AS MODELS FOR THE
CAREERS OF THE YOUNG;

--THE ECONOMIC CONDITION OF MOST MINORITIES
MAKES ANY ADVANCED EDUCATION DIFFICULT TO OBTAIN,
WHEN THAT EDUCATION REQUIRES LONGER HOURS IN SCHOOL
FOR LABORATORY WORK--MAKING OUTSIDE EMPLOYMENT
DIFFICULT TO ARRANGE--THIS ECONOMIC PROBLEM IS
COMPOUNDED;

--THE COMMUNITY COLLEGES AND PREDOMINATELY BLACK
INSTITUTIONS THAT MOST MINORITIES ATTEND HAVE GENERALLY
NOT BEEN ADEQUATELY FUNDED TO PROVIDE QUALITY ENGI-
NEERING EDUCATION.

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ANOTHER SERIOUS RELATED PROBLEM IS THE LACK OF
TECHNICALLY TRAINED MINORITIES AT THE TOP MANAGERIAL
AND PROFESSIONAL LEVELS OF INDUSTRY, GOVERNMENT AND
EDUCATION. / BESIDES THE OBVIOUS REASON THAT THERE IS
ONLY A LIMITED POOL OF LOWER LEVEL MINORITY ENGINEERS
IN THESE ORGANIZATIONS TO PUT INTO THE LEADERSHIP
POSITIONS, OTHER REASONS HAVE BEEN NOTED. SOME OF
THESE ARE:

--RIGIDITIES IN THE PROMOTIONAL AND SENIORITY
SYSTEMS OF THESE ORGANIZATIONS;

--SMALL NUMBER OF THE MINORITY ENGINEERS WITH
EDUCATIONAL BACKGROUNDS THAT CAN COMPETE WITH THEIR
PEERS WHO ATTENDED THE U. S. "CENTERS OF EXCELLENCE"
IN ENGINEERING; AND

--THE PERSISTENCE OF BIAS IN MOST ORGANIZATIONS
AT MANY LEVELS, DESPITE THE OFFICIAL POLICIES OF
THESE INSTITUTIONS.

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now, WHAT CAN BE DONE TO CORRECT THIS SITUATION,

TO IMPROVE THE SUPPLY OF MINORITY ENGINEERS AND SEE
TO IT THAT THEY ARE GIVEN FAIR TREATMENT IN MOVING
UP IN OUR PRIVATE AND PUBLIC INSTITUTIONS?

IT SEEMS TO ME THAT TODAY'S SYMPOSIUM IS A MAJOR
STEP IN THE RIGHT DIRECTION. L THE FIRST STEP IS TO
RECOGNIZE THE PROBLEM, DEVELOP A STRATEGY FOR DEALING
WITH IT AND MOBILIZE A BROAD SPECTRUM OF BUSINESS,
EDUCATION AND GOVERNMENT LEADERS TO WORK TOGETHER
TOWARD A SOLUTION.

L I DON'T HAVE ANY QUICK AND EASY SOLUTION TO
OFFER. L I WISH I DID! THE PEOPLE IN THIS ROOM ARE
MUCH MORE QUALIFIED THAN I TO CHART THE RIGHT COURSE.

L I DO HAVE A COUPLE OF IDEAS, HOWEVER.

L FIRST, IT SEEMS TO ME THAT A SERIES OF REGIONAL
CONSORTIA FOR MINORITY ENGINEERING EDUCATION MIGHT BE
ESTABLISHED.

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WITH MINORITY EDUCATION IN THE LEAD, MINORITY EDUCATIONAL INSTITUTIONS COULD DEVELOP COOPERATIVE PROGRAMS WITH THE VARIOUS "CENTERS OF EXCELLENCE" IN ENGINEERING AROUND THE COUNTRY.

THIS WOULD PROVIDE MINORITY STUDENTS WITH AN OPPORTUNITY TO AVAIL THEMSELVES OF THE FACILITIES AND EXPERTISE OF THESE INSTITUTIONS AND THE "CENTERS OF EXCELLENCE" WITH A POOL OF QUALIFIED MINORITY STUDENTS TO DRAW INTO THEIR PROGRAMS. EXCHANGES OF PROFESSORS, OPPORTUNITIES FOR JOINT APPOINTMENTS OF FACULTY, WITH RESEARCH OPPORTUNITIES FOR ALL, WOULD IMPROVE THE QUALITY OF EDUCATION AT ALL CONSORTIA INSTITUTIONS. PERHAPS, A SERIES OF FEDERAL "INSTITUTION BUILDING" GRANTS COULD BE PROVIDED TO THE MINORITY INSTITUTIONS TO EXPAND ENGINEERING FACULTIES AND FINANCE NEEDED FACILITIES.

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#2 SECOND, A "BLUE RIBBON" TASK FORCE COULD BE ESTABLISHED WITH LEADERS OF INDUSTRY, GOVERNMENT, AND EDUCATION AS MEMBERS. THIS GROUP WOULD BE COMPOSED AT LEAST 50% OF MINORITIES AND BE RESPONSIBLE FOR FOCUSING PUBLIC ATTENTION ON THE MINORITY ENGINEERING PROBLEM. THEY WOULD EMPHASIZE THE GROWING SHORTAGE OF ENGINEERS AND RISING DEMAND FOR MINORITIES IN THIS FIELD.

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THIRD, THIS GROUP COULD ESTABLISH DIRECT CONTACT WITH GUIDANCE COUNSELORS IN SECONDARY SCHOOLS IN AREAS WITH LARGE MINORITY POPULATIONS. MINORITY STUDENTS, MORE THAN MOST TEENAGERS, ARE CUT OFF FROM A VIEW OF WHAT CAREER OPPORTUNITIES EXIST IN THE COUNTRY.

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PROVIDING INFORMATION ON FUTURE DEMAND FOR ENGINEERS,
INDUSTRY DEMAND FOR MINORITY ENGINEERS, IMPORTANCE OF
THE ENGINEERING PROFESSION IN THE SOLUTION OF INNER CITY
SOCIO/ECONOMIC PROBLEMS, SOURCES OF FINANCIAL ASSISTANCE
FOR ENGINEERING EDUCATION, COULD GO A LONG WAY TOWARD
STIMULATING MORE INTEREST IN ENGINEERING AMONG THE
GROWING NUMBER OF WELL TRAINED MINORITY YOUTH IN OUR
HIGH SCHOOLS.

FINALLY, IT SEEMS TO ME THAT THE BEST WAY FOR
INDUSTRY TO GET MORE MINORITY ENGINEERS IN THEIR
DRAFTING ROOMS IS BY PUTTING MORE MINORITIES IN THEIR
BOARD ROOMS. UNLESS THE POSSIBILITY OF RISING TO THE
TOP CAN BE DEMONSTRATED TO TALENTED YOUNG MINORITIES,
THEY WILL CHOOSE OTHER PROFESSIONS FOR THEIR CAREERS.



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