

MASTER

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COPSE

ENGINEERING - THE FUTURE

HONOURED GUESTS, LADIES AND GENTLEMEN, FRIENDS AND COLLEAGUES, THANK YOU FOR EXTENDING TO ME AN INVITATION TO BE HERE TODAY. I AM VERY PLEASED TO SEE THAT THE COMMITTEE OF PARLIAMENTARIANS, SCIENTISTS AND ENGINEERS CONTINUES TO RECOGNIZE THE IMPORTANCE OF ENGINEERING, OR WHAT THE FEDERAL GOVERNMENT HAS A TENDENCY TO CALL TECHNOLOGY. IT IS INDEED A DISTINCT HONOUR TO BE ASKED TO SPEAK BEFORE SUCH A DISTINGUISHED AUDIENCE.

AS YOU KNOW, 1987 IS THE YEAR OF THE ENGINEERING CENTENNIAL IN CANADA.

ENGINEERS FROM ALL OVER CANADA ARE NOW CELEBRATING THE 100TH ANNIVERSARY OF ENGINEERING AS AN ORGANIZED PROFESSION IN CANADA.

FOR MANY MONTHS NOW, THE ENGINEERING CENTENNIAL BOARD, ITS MANY COMMITTEES, PROVINCIAL ENGINEERING ASSOCIATIONS AND SPECIALIZED TECHNICAL CORPORATIONS HAVE BEEN AT WORK ON PREPARATIONS FOR THIS GREAT EVENT, WITH THE CLOSE COOPERATION OF PRIVATE INDUSTRY AND VARIOUS PUBLIC BODIES.

UNDER THE THEME: "MIND, HEART AND VISION; CANADIAN ENGINEERING; THE NEXT ONE HUNDRED YEARS", A MYRIAD OF ACTIVITIES AT THE REGIONAL, NATIONAL AND INTERNATIONAL LEVELS HAS BEGUN TAKING PLACE ACROSS CANADA. THESE ACTIVITIES SHED LIGHT ON THE MAJOR

ROLE OF ENGINEERING IN THE DAILY LIFE OF ALL CITIZENS, AS WELL AS TAKING A LOOK AT FUTURE PERSPECTIVES. THUS, WE WILL ALL HAVE A GLIMPSE OF THE CURRENT STATE OF AFFAIRS IN THE MANY VARIED DISCIPLINES OF ENGINEERING.

TODAY I WOULD LIKE TO REVIEW FOR YOU, BRIEFLY, SOME OF THE ACTIVITIES PLANNED FOR THIS YEAR FOR THE CENTENNIAL IN CANADA. THEN I WILL TOUCH ON SOME MATTERS RELATED TO SCIENCE AND TECHNOLOGY POLICY INsofar AS IT RELATES TO ENGINEERING.

I WOULD NOW LIKE TO REVIEW FOR YOU THE BACKGROUND OF THE ENGINEERING CENTENNIAL YEAR.

THE CENTENNIAL THAT ALL CANADIAN ENGINEERS ARE CELEBRATING IS MORE PRECISELY THAT OF THE FOUNDING IN MONTREAL, IN 1887, OF THE CANADIAN SOCIETY FOR CIVIL ENGINEERING.

NEARLY ALL OF THE ACTIVITIES OF ENGINEERING PRACTICED IN CANADA HAVE THEIR ORIGINS IN CIVIL OR MILITARY ENGINEERING.

THUS, WHEN THE NAME OF THE SOCIETY WAS CHANGED TO THAT OF THE ENGINEERING INSTITUTE OF CANADA, IN 1918, THE PROFESSION WAS SPREADING OUT TO ENCOMPASS OTHER DISCIPLINES, THE NEW NAME ALSO MORE ADEQUATELY REFLECTED THE WORK ACCOMPLISHED BY SPECIALIZED ENGINEERS IN THE COUNTRY IN FULL GROWTH. BEGINNING IN 1920, LAWS REGULATING ENGINEERING WERE ADOPTED IN SIX CANADIAN PROVINCES AND LATER IN THE REMAINING PROVINCES AND TERRITORIES.

THE YEAR 1925 SAW THE FOUNDING OF THE ASSOCIATION OF CONSULTING ENGINEERS OF CANADA. THIS ASSOCIATION TODAY HAS SOME 850 MEMBER FIRMS AND REPRESENTS MORE THAN 150 SPECIALTIES.

SEVERAL YEARS LATER IN 1936, THE DOMINION COUNCIL OF PROFESSIONAL ENGINEERS WAS FOUNDED. IT LATER CHANGED ITS NAME TO THE CANADIAN COUNCIL OF PROFESSIONAL ENGINEERS IN 1957. I HAVE THE DISTINCT HONOUR AND PRIVILEGE TO SERVE AS A PRESIDENT OF CCPE BEGINNING IN MAY OF THIS YEAR. CCPE IS A FEDERATION OF THE 12 PROVINCIAL AND TERRITORIAL ASSOCIATIONS WHICH LICENSE ALL PROFESSIONAL ENGINEERS ACROSS CANADA.

IN CELEBRATING THE CENTENNIAL OF THE ENGINEERING INSTITUTE OF CANADA WE ARE ALSO TURNING THE SPOTLIGHT ON ONE HUNDRED YEARS OF PROFESSIONAL ENGINEERING IN CANADA. AND SO TO BETTER HIGHLIGHT THIS EVENT, MEMBERS OF THE THREE MAJOR ASSOCIATIONS WHOSE ORIGINS I HAVE JUST DETAILED, CAME TOGETHER AND CREATED THE ENGINEERING CENTENNIAL BOARD INC.

TO SHOW THE TRUE COLORS OF THE CENTENNIAL, THE BOARD SELECTED THE THEME "MIND, HEART AND VISION; CANADIAN ENGINEERING; THE NEXT ONE HUNDRED YEARS". THUS WE SITUATED THE YEAR UNDER THE SIGN OF THE FUTURE. BUT THIS FUTURE MUST REFLECT THE HIGHEST QUALITIES OF THE MEN AND WOMEN WHO WILL BUILD IT, FOR THE GREATER GOOD OF SOCIETY.

THE FUTURE OF ENGINEERING IS INTIMATELY LINKED TO THAT OF CANADIAN SOCIETY. MIND, HEART AND VISION CONSTITUTE, IN THIS SENSE THE VERITABLE FOUNDATIONS OF THE COMMITMENT OF CANADIAN ENGINEERS TO SOCIETY.

THE CANADIAN ENGINEERING CENTENNIAL BOARD HAS ALREADY HAD A MAJOR EVENT IN OTTAWA, ON JANUARY 22, IN THE RAILWAY COMMITTEE ROOM, THE PRIME MINISTER OF CANADA ANNOUNCED THE TEN MOST REPRESENTATIVE FEATS OF CANADIAN ENGINEERING OVER THE LAST ONE HUNDRED YEARS. ENGINEERS ACROSS CANADA WERE DELIGHTED TO KNOW THAT THE PRIME MINISTER WOULD TAKE THE TIME FROM HIS BUSY SCHEDULE TO HONOUR THEIR PROFESSION.

A COMMITTEE OF THE ENGINEERING CENTENNIAL BOARD SELECTED FROM MORE THAN ONE HUNDRED PROJECTS THE TEN WHICH HAD THE GREATEST IMPACT ON THE DEVELOPMENT OF OUR COUNTRY. THESE TEN PROJECTS WERE;

- THE DEVELOPMENT OF THE RAILWAY NETWORKS ACROSS CANADA
- THE BUILDING OF THE ST LAWRENCE SEAWAY
- THE DE HAVILLAND BEAVER AIRCRAFT
- THE BOMBARDIER SNOWMOBILE
- THE ENGINEERING ACHIEVEMENTS OF HYDRO QUEBEC
- THE DEVELOPMENT OF THE ATHABASCA OIL SANDS
- THE CANADIAN NUCLEAR POWER SYSTEM
- THE PETRO CHEMICAL COMPLEX OF POLYSAR LIMITED IN SARNIA
- THE ALOUETTE SATELLITE
- THE CREATION OF THE TRANS CANADA TELEPHONE SYSTEM

AS AN AEROSPACE ENGINEER, I AM DISAPPOINTED THAT NEITHER THE AVRO ARROW, THE ORENDA ENGINE SERIES, NOR THE PRATT AND WHITNEY AIRCRAFT COMPANY PT-6 WERE NOT SELECTED. HOWEVER THAT'S AN AEROSPACE ENGINEER'S POINT OF VIEW AND WE ALL HAVE OUR FAVORITES.

I DRAW YOUR ATTENTION TO THE FACT THAT THESE ACHIEVEMENTS NOT ONLY COLLECTIVELY CONTRIBUTED TO THE DEVELOPMENT OF OUR COUNTRY, BUT ALSO ULTIMATELY HAD A SPIN-OFF-EFFECT INTO OTHER INITIATIVES AT HOME AND ABROAD.

AS THE PRIME MINISTER TOLD GUESTS AT THE INAUGURATION CEREMONIES IN OTTAWA ON JANUARY 22 "IT WOULD BE IMPOSSIBLE TO IMAGINE THIS COUNTRY WITHOUT THE DARING AND COURAGE OF THE MANY ENGINEERS WHO BUILT IT. THE WORD "EXCELLENCE" IS ALWAYS ASSOCIATED WITH CANADA'S ENGINEERS". MR. MULRONEY THEN WENT ON TO SAY THAT ENGINEERS ARE ALWAYS ON THE CUTTING EDGE OF NEW TECHNOLOGY AND HAVE THE REPUTATION OF BEING INNOVATIVE AND HIGHLY SKILLED PROFESSIONALS".

IN THE SERVICES SECTOR, THERE IS A LIMIT TO THE NUMBER OF BANKS, REAL ESTATE TRANSACTIONS, THE MOVEMENT OF GOODS, GOVERNMENT SERVICES AND THE LIKE THAT A SLOWLY GROWING ECONOMY CAN SUSTAIN. WE ARE LED INESCAPABLY TO THE CONCLUSION THAT OUR - 5 - FUTURE GROWTH MUST RELY ON THE SERVICES AND MANUFACTURING SECTORS.

CLEARLY ENGINEERING HAS PLAYED A MAJOR ROLE IN CANADA BUT WHERE DOES THIS ALL LEAD TO?

UNFORTUNATELY CANADA HAS SLIPPED FROM THE LEADING RANKS OF INDUSTRIALIZED NATIONS. IT IS WELL UNDERSTOOD THAT WHILE GROWTH TRENDS IN RECENT YEARS HAVE BEEN RELATIVELY FAVOURABLE, THE PRINCIPAL SOURCES OF GROWTH HAVE BEEN IN THE SERVICES AND MANUFACTURING SECTORS AND NOT IN THE RESOURCES SECTOR WHICH STILL ACCOUNTS FOR ABOUT 40% OF CANADA'S GNP. ~~IN THE SERVICES AND MANUFACTURING SECTORS.~~ WITHIN THESE SECTORS, IT IS THE ADVANCED OR HIGH TECHNOLOGY COMPONENTS THAT HAVE THE GREATEST POTENTIAL FOR RAPID GROWTH. WHILE CANADA DOES HAVE A FAVOURABLE TRADE BALANCE, SUSTAINED BY RESOURCE SECTOR EXPORTS, THE COMPONENT WE MUST RELY ON THE MOST IN FUTURE - HIGH TECHNOLOGY - SUFFERS A MISERABLE 12 BILLION DOLLAR DEFICIT IN RECENT YEARS AND GETTING WORSE!
ITS

I HAVE LINKED SERVICES AND MANUFACTURING SECTORS TOGETHER BECAUSE I THINK IT IS MISLEADING TO SEPARATE THEM. OVER THE PAST TWO DECADES WE HAVE SEEN THE TRANSCENDENCE IN GROWTH OF THE SERVICE SECTOR OVER THE MANUFACTURING SECTOR IN ECONOMIC STATISTICS DESCRIBING OECD COUNTRIES. WHAT IN FACT HAS HAPPENED IS A STRUCTURAL CHANGE IN THE MANUFACTURING INDUSTRIES WHICH INCREASINGLY RELY ON SERVICES THAT PREVIOUSLY WERE DONE IN HOUSE. THUS JOBS PREVIOUSLY COUNTED IN THE MANUFACTURING SECTOR ARE NOW CONSIDERED TO BE SERVICES WHICH HAS CONFUSED THE PICTURE. THUS THE SPECTACULAR GROWTH OF THE SERVICE SECTOR CONSISTS NOT ONLY OF THE EXPECTED GROWTH WITH GNP AND PER CAPITA WEALTH, BUT ALSO IT IS DERIVED FROM ~~THE~~ STRUCTURAL CHANGES WITHIN THE MANUFACTURING SECTOR.

I BELIEVE WE ARE AND MUST CONSIDER OURSELVES TO BE AN INDUSTRIAL ECONOMY, AND THAT THE WHOLE NOTION OF A POST-INDUSTRIAL ECONOMY IS A MYTH. I AM NOT SUGGESTING FOR A MOMENT THAT THE KNOWLEDGE

INDUSTRIES ARE LESS IMPORTANT, NOR THAT THE DAYS OF SMOKESTACK INDUSTRIES ARE NUMBERED, IT IS JUST THAT I WANT TO EMPHASIZE THE CONTINUING IMPORTANCE OF MANUFACTURING TO OUR FUTURE ECONOMIC SURVIVAL, AND TO NOTE THAT A SIGNIFICANT PROPORTION OF THE SERVICES SECTOR IS ENTIRELY DEPENDENT ON MANUFACTURING.

NEW SCIENCE AND TECHNOLOGY POLICIES MUST LEAD US INTO THE FUTURE. IT IS IMPORTANT THAT WE PROCEED NOW AND WITHOUT FURTHER DELAY. UNFORTUNATELY OUR PAST DELAYS HAVE RESULTED IN A GRADUAL DRIFT OF THE CANADIAN ECONOMY SUCH THAT MUCH GROUND HAS BEEN LOST. THE BASIS OF A SOUND SCIENCE AND TECHNOLOGY STRATEGY CAN BE LAID OUT NOW. ENGINEERING CAN, WILL, AND MUST PLAY AN IMPORTANT ROLE.

THE NATIONAL TECHNOLOGY POLICY ROUND TABLE, COORDINATED BY THE CANADIAN ADVANCED TECHNOLOGY ASSOCIATION, CATA, IN 1986 SUGGESTED THE ELEMENTS OF A NATIONAL SCIENCE AND TECHNOLOGY STRATEGY. IT CONTAINED SIX ELEMENTS:

1. DEVELOPING THE HUMAN RESOURCE BASE DEALING WITH ELEMENTARY, SECONDARY, POST-SECONDARY AND IN-SERVICE EDUCATION AND THE LINKS WITH INDUSTRY.
2. CREATING THE R AND D BASE, DEALING WITH NATIONAL SPENDING, DISTRIBUTION OF EFFORT BETWEEN INDUSTRY, GOVERNMENT AND THE UNIVERSITIES, AND SPECIFIC RESEARCH TARGETS.
3. ESTABLISHING THE ADVANCED TECHNOLOGY BASE THROUGH FREER TRADE, MARKET DEVELOPMENT, MANAGEMENT DEVELOPMENT AND FINANCING THE INNOVATION CHAIN.
4. ENCOURAGING THE USE OF TECHNOLOGY THROUGH TECHNOLOGICAL DIFFUSION BY OVERCOMING CULTURAL AND BUSINESS CONSTRAINTS AND THE PROBLEMS OF SMALL COMPANY ADAPTION.

5. FACILITATING WORKFORCE ADAPTATION TO TECHNOLOGICAL CHANGE.
6. ESTABLISHING THE POLITICAL BASE THROUGH BETTER COMMUNICATION BETWEEN FEDERAL AND PROVINCIAL GOVERNMENTS AND THE SCIENCE AND TECHNOLOGY COMMUNITY, AND INCREASED PUBLIC AWARENESS.

ANY FUTURE SCIENCE TECHNOLOGY POLICY FOR CANADA DEPENDS UPON THE DEVELOPMENT OF APPROPRIATE SKILLS OF THOSE WHO ARE CURRENTLY IN THE EARLY STAGES OF DEVELOPMENT. WE MUST EMPHASIZE THE EDUCATIONAL REQUIREMENTS OF A KNOWLEDGE AND TECHNOLOGY INTENSIVE SOCIETY. FOR FAR TOO LONG CANADIAN UNIVERSITIES AND IN PARTICULAR ENGINEERING SCHOOLS AND FACULTIES, HAVE SUFFERED DUE TO REDUCED FUNDS FOR RESEARCH EQUIPMENT AND OPERATING GRANTS. STUDENT PROFESSOR RATIOS HAVE GROWN ALARMINGLY TO THE POINT THAT QUALITY EDUCATION IS THREATENED. IF CANADIAN RESEARCHERS CANNOT UNDERTAKE RESEARCH OR STUDY EFFECTIVELY ~~THAN~~ IT IS IMPOSSIBLE TO DEVELOP AN APPROPRIATE FUTURE FOR SCIENCE AND TECHNOLOGY IN THIS COUNTRY.

ACTION MUST BE TAKEN IMMEDIATELY TO EXPAND AND RATIONALIZE CANADIAN RESEARCH AND DEVELOPMENT EFFORTS. HISTORY SHOWS MANY EXAMPLES OF THE DEMISE OF COUNTRIES THAT FAIL TO KEEP PACE WITH CHANGING TIMES. ARGENTINA FOR EXAMPLE, HAD THE FOURTH HIGHEST STANDARD OF LIVING IN THE WORLD IN THE 1920'S. UNFORTUNATELY IT WAS TIED TO A RESOURCE INTENSIVE ECONOMY AND BOUND BY TRADITIONAL VALUES AND INSTITUTIONS. ARGENTINA FAILED TO ADAPT AS THE WORLD ECONOMY EVOLVED. WE ALL KNOW TOO CLEARLY THAT CANADA HAS ALWAYS DEPENDED UPON ITS RESOURCES. WE MUST NOT BECOME THE ARGENTINA OF THE 21ST CENTURY.



GOVERNMENT POLICIES SHOULD STRENGTHEN AND ENCOURAGE PRIVATE SECTOR R&D SO THAT INDUSTRIAL R&D IS A MORE EFFECTIVE INSTRUMENT OF INTERNATIONAL COMPETITIVENESS. WHEN THE CURRENT CONSERVATIVE GOVERNMENT CAME TO POWER IT TARGETED 2.5 PER CENT OF GNP INTO RESEARCH AND DEVELOPMENT. UNFORTUNATELY THE FIGURE NOW STANDS AT 1.3 PER CENT, A SHADE ABOVE THE 1.2 PERCENT THAT THE GOVERNMENT INHERITED WHEN THEY TOOK OVER OFFICE FROM THE LIBERALS. I AM PLEASED TO NOTE HOWEVER THAT A RECENT CONFERENCE BOARD OF CANADA SURVEY SHOWED THAT RESEARCH SPENDING BY CANADIAN COMPANIES WAS EXPECTED TO INCREASE BY 6.8 PER CENT THIS YEAR, A WELCOME TURN AROUND FROM LAST YEAR'S 2.1 PERCENT DECLINE.

A NEW TECHNOLOGY PROGRAM IN CANADA REQUIRES STRONGER INVESTMENT INCENTIVES INCLUDING MORE FAVOURABLE TAX TREATMENT FOR PREPRODUCTION MARKET DEVELOPMENT COSTS. TAX INCENTIVES ARE ONE OF THE MOST EFFECTIVE MEANS TO SUPPORT COMPANIES WHICH INVEST IN TECHNOLOGY. A RECENT SURVEY CONCLUDED THAT 86 PERCENT OF COMPANIES WOULD HAVE HAD THEIR R&D PROGRAMS ADVERSELY AFFECTED HAD IT NOT BEEN FOR FEDERAL TAX INCENTIVES. THE PRIME MINISTER OF CANADA, IN A SPEECH DELIVERED TO STUDENTS AT THE UNIVERSITY OF WATERLOO EARLIER THIS MONTH, HINTED THAT NEW R&D TAX INCENTIVES MAY BE JUST AROUND THE CORNER. I WOULD RECOMMEND TO ALL OF YOU IN THIS ROOM THAT SUPPORT BE GIVEN FOR THIS INITIATIVE.

THERE IS AN IMMEDIATE NEED FOR AN APPROPRIATE AND EFFECTIVE SYSTEM FOR THE DIFFUSION OF TECHNOLOGY. THERE MUST BE GREATER COLLABORATION IN ALL SECTORS OF GOVERNMENT, ACADEMIA AND INDUSTRY. LONG TERM PLANNING MUST BECOME A REALITY, POLICY CHANGES MUST BE PHASED IN TO MINIMIZE DISRUPTION IN INDUSTRIAL PLANNING, AND GOVERNMENT AGENCIES INVOLVED IN THE DIFFUSION OF TECHNOLOGY MUST BE DEPOLITIZED.

THROUGH GROWTH IN OTHER SECTORS, CANADA WILL MOVE AWAY FROM A DEPENDENCE ON ITS RESOURCE-BASED ECONOMY. WHILE OUR RESOURCES HAVE ALWAYS SERVED US WELL AND WILL CONTINUED TO PROVIDE AN IMPORTANT FUNCTION IN CANADA, THEIR GROWTH IS LIMITED. THE MAJORITY OF OUR LARGER COMPANIES IN CANADA TEND TO BE IN THE NATIONAL RESOURCE SECTOR. THE MAJORITY OF THE REMAINDER OF OUR COMPANIES ARE SUBSIDIARIES OF MULTI-NATIONAL CORPORATIONS. WE STILL RELY FAR TOO MUCH ON THE FLOW OF TECHNOLOGY FROM MULTI-NATIONAL CORPORATIONS IN OUR ECONOMY. THIS SITUATION IS EXACERBATED BY THE FACT THAT RESEARCH DONE IN CANADA, OR IDEAS FOR NEW PRODUCTS, FREQUENTLY END UP BEING EXPLOITED ELSEWHERE.

WE MUST MAKE IT A NATIONAL PRIORITY TO BUILD OUR OWN CANADIAN BASED RESEARCH AND DEVELOPMENT AND MANUFACTURING CAPACITIES. WE MUST LAY A STRONG FOUNDATION FOR THE CREATION OF NEW PRODUCTS AND SERVICES THAT ARE COMPETITIVE IN CANADA AGAINST MULTI-NATIONAL CORPORATIONS, AND THAT ARE ALSO ABLE TO BE MARKETED IN A COMPETITIVE FASHION INTERNATIONALLY.

UNFORTUNATELY, WHEN IT COMES TO MAJOR PROCUREMENTS, WE HAVE DEVELOPED A MENTALITY THAT THE ONLY CORPORATIONS CAPABLE OF DESIGNING OR DEVELOPING NEW AND SOPHISTICATED SYSTEMS MUST COME FROM ABROAD. THIS IS PARTICULARLY ~~TRUE~~^{TRUE} FOR SOME GOVERNMENT PROCUREMENTS WHERE TENDER DOCUMENTS SEEM TO BE DESIGNED TO PRECLUDE CANADIAN COMPANY PARTICIPATION BECAUSE OF THE MASSIVE RISKS TO BE ASSUMED BY THE CONTRACTOR.

IN MOST CASES, THE DOCUMENTS COULD BE CONSTRUCTED IN SUCH A WAY THAT CANADIAN COMPANIES NOT CAPABLE OF ASSUMING THE FINANCIAL RISKS OF A TOTAL PROCUREMENT MIGHT BID ON PHASES OF THE PROJECT THAT MAINTAIN THE LEVEL OF RISK CONSISTENT WITH THE SIZE AND FINANCIAL STRENGTH OF OUR MORE FLEDGLING CANADIAN COMPANIES.

WE MUST MAKE IT A TOP PRIORITY TO IMPROVE THE ABILITY OF OUR ADVANCED TECHNOLOGY INDUSTRY TO CONDUCT AND MARKET INITIATIVES OF THEIR OWN.

ALL THESE PROPOSALS REQUIRE A BROAD POLITICAL COMMITMENT TO THE ACHIEVEMENT OF NATIONAL SCIENCE AND TECHNOLOGY GOALS. UNTIL RECENTLY THE FEDERAL GOVERNMENT, AND TO A LESSER DEGREE THE PROVINCIAL GOVERNMENTS, HAVE ALWAYS STATED IN PRINCIPLE THAT THEY AGREE WITH THIS POSITION. UNFORTUNATELY THERE HAS BEEN NO POLITICAL WILL OR MORE IMPORTANTLY A FINANCIAL COMMITMENT TO LIVE UP TO THESE PROMISES. THIS SITUATION IS I HOPE CHANGING.

SPEAKING ON BEHALF OF THE PROFESSION^{OF} ENGINEERING, I WAS PLEASED TO SEE THE INITIATIVES TAKEN BY THE STANDING COMMITTEE ON RESEARCH, SCIENCE AND TECHNOLOGY OVER THE PAST YEAR. THE PROFESSION WILL BE WATCHING WITH GREAT INTEREST AS THE COMMITTEE PROCEEDS WITH ITS WORK, AND IS PREPARED TO HELP IN ANY WAY IT CAN. THE IMMEDIATE SUBJECT OF CANADA'S SPACE PROGRAM IS NEAR TO MY HEART. ALSO IT REPRESENTS THE KIND OF NATIONAL EFFORT THAT LEADS TO MANY SPINOFFS AND NEW TECHNOLOGICAL ENTERPRISES. PRESENTLY, I AM EQUALLY INTERESTED IN MATTERS RELATED TO CANADA'S OCEANS AND THE NEED TO DEVELOP SOUND SCIENCE AND TECHNOLOGY POLICIES THAT WILL LEAD TO A STRENGTHENING OF CANADA'S OCEAN INDUSTRIES, WITH NO LESS THAN 68 OUT OF 282 FEDERAL RIDINGS THAT BORDER CANADA'S THREE OCEANS I EXPECT OCEANS-RELATED ACTIVITIES WILL BE GETTING THE ATTENTION THEY DESERVE BY PARLIAMENTARIANS.

IN THE THRONE SPEECH OF OCTOBER 1986, THE GOVERNOR GENERAL ANNOUNCED THAT PRIME MINISTER MULRONEY WOULD APPOINT AND CHAIR A NEW NATIONAL ADVISORY BOARD FOR SCIENCE AND TECHNOLOGY. THIS BOARD HELD ITS FIRST MEETING IN OTTAWA ON FEBRUARY 16TH OF THIS YEAR. IT HAS A MANDATE TO ADVISE THE PRIME MINISTER ON CURRENT AND ANTICIPATED DOMESTIC AND INTERNATIONAL DEVELOPMENTS AND TRENDS IN SCIENCE AND TECHNOLOGY.

THE BOARD IS MADE UP OF 35 REPRESENTATIVES FROM THE SCIENTIFIC, INDUSTRIAL, ACADEMIC AND LABOUR COMMUNITIES OF WHICH 14 ARE PROFESSIONAL ENGINEERS. AT THE FIRST MEETING, WHICH WAS ATTENDED BY FINANCE MINISTER MICHAEL WILSON; MICHEL COTE, MINISTER OF REGIONAL INDUSTRIAL EXPANSION; MINISTER OF STATE FOR SCIENCE AND TECHNOLOGY, FRANK OBERLE, MEMBERS WERE BROUGHT UP TO DATE ON THE FEDERAL GOVERNMENT'S MOST RECENT INITIATIVES IN SCIENCE AND TECHNOLOGY. A GREAT DEAL OF TIME WAS SPENT REVIEWING GOVERNMENT PROGRAMS AND POSSIBILITIES FOR THE FUTURE.

LAST WEEK IN VANCOUVER THE COUNTRY'S SCIENCE MINISTERS GATHERED TO UNVEIL A LONG-AWAITED NATIONAL SCIENCE POLICY. THE ONE-PAGE POLICY SAYS THAT CANADA NEEDS TO ENCOURAGE AND COMMERCIALIZE TECHNOLOGICAL DEVELOPMENTS AND BOLSTER BASIC AND APPLIED RESEARCH IN INDUSTRIAL INNOVATION. UNFORTUNATELY THERE IS NO FINANCIAL COMMITMENT ATTACHED TO THE POLICY STATEMENT. A FEDERAL GOVERNMENT CABINET DOCUMENT PREPARED FOR CABINET LAST FALL HAS STILL NOT BEEN APPROVED BY THE GOVERNMENT. HOWEVER IF THE RECENT STATEMENTS BY THE PRIME MINISTER AND THE MINISTER OF STATE FOR SCIENCE AND TECHNOLOGY ARE TO BE TAKEN SERIOUSLY, CANADA PRESUMABLY IS ON ITS WAY TO CLIMBING OUT OF THE HOLE IT HAS FALLEN INTO.

I HAVE ALWAYS TAKEN PRIDE IN CONSIDERING MYSELF TO BE A REALISTIC OPTIMIST. THE FUTURE OF OUR COUNTRY IS SOLID IF THE INITIATIVES I HAVE REFERRED TO ARE IMPLEMENTED. A NEW SCIENCE AND TECHNOLOGY POLICY, WHICH IS IN MANY RESPECTS AN ENGINEERING PROGRAM FOR THE FUTURE, IS VITAL TO OUR NATION. WHEN YOU THINK ABOUT IT, IT IS THE ENGINEER WHO PROVIDES FOR THE ADDING OF VALUE AND THE CREATION OF WEALTH FROM AN OTHERWISE RAW RESOURCE.

IN THIS THE CENTENNIAL YEAR OF ENGINEERING, THERE ARE MANY ECONOMIC AND SOCIAL ISSUES FACING CANADA WHERE ENGINEERS CAN CONTRIBUTE TO THEIR RESOLUTION.

IF WE AS A PROFESSION ALONGSIDE OUR SCIENTIFIC AND
PARLIAMENTARIAN COLLEAGUES CAN RISE TO THE OCCASION, THEN INDEED
THE NEXT CENTURY BELONGS TO CANADA!

- o "The popular mind often pictures gigantic flying machines speeding across the Atlantic carrying innumerable passengers in a way analogous to our modern steam ships....it seems safe to say that such ideas are wholly visionary and even if the machine could get across with one or two passengers, the expense would be prohibitive to any but the capitalist who could use his own yacht."

William H. Pickering, Astronomer, 1910

- o "Aircraft flight is impossible."

Lord Kelvin

- o "While theoretically and technically television may be feasible, commercially and financially I consider it an impossibility, a development of which we need waste little time dreaming".

Lee DeForest, 1926

- o "The energy produced by the breaking down of the atom is a very poor kind of thing. Anyone who expects a source of power from the transformation of these atoms is talking moonshine."

Ernest Rutherford

- o "Fooling around with alternating currents is just a waste of time. Nobody will use it, ever. It's too dangerous...it could kill a man as quick as a bolt of lightning. Direct current is safe."

Thomas Edison

- o "I can accept the theory of relativity as little as I can accept the existence of atoms and other such dogmas."

Ernst Mach (1838-1916)

- o "What, Sir, would you make a ship sail against the wind and currents by lighting a bonfire under her deck? I pray you excuse me. I have no time to listen to such nonsense."

Napoleon to Robert Fulton

- o "Space travel is utter bilge"

Sir Richard van der Riet Wooley, The Astronomer Royal,
1956

- o "X-rays are a hoax."

Lord Kelvin