PHILANTHROPY IN THE BASIC SCIENCES

DELIVERED BY

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THE ASSOCIATION OF THE BAR OF THE CITY OF NEW YORK APRIL 21, 1982

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THE TITLE OF MY TALK IS PHILANTHROPY IN THE BASIC SCIENCES. I'M INCLINED TO USE AS AN ALTERNATE TITLE: "How Hard it is to GIVE AWAY ONE HUNDRED MILLION DOLLARS," OR, "It's EASIER TO MAKE IT THAN GIVE IT AWAY."

I'M HARDLY AN AUTHORITY ON PHILANTHROPY IN THE BASIC SCIENCES, AS I HAVE ONLY HAD A SINGLE EXPERIENCE. ONE MIGHT THINK, FROM THE TITLE THAT I WOULD PROVIDE A PHILOSOPHIC DISSERTATION ON THE SUBJECT; HOWEVER, I'M AFRAID THAT I'M NOT A GREAT PHILOSOPHER. PERHAPS, IF I WERE, I WOULD BE LESS OF A PHILANTHROPIST.

LET ME TRY TO DESCRIBE MY SINGLE EXPERIENCE:

TOGETHER WITH MY FATHER, I FOUNDED A COMPANY CALLED TECHNICON IN 1939. THIRTY YEARS LATER, IN 1969, I OWNED 100% OF TECHNICON AND WENT PUBLIC BY SELLING APPROXIMATELY 5% OF THE COMPANY, OR 1 MILLION SHARES AT \$42 A SHARE,

QUITE SUDDENLY, I REALIZED, OR PERHAPS MORE IMPORTANTLY, MY ADVISORS REALIZED, THAT I MIGHT HAVE A VERY SIZABLE FORTUNE, AT LEAST ON PAPER.

AT THIS POINT IN TIME, ONE STARTS TO MAKE LONG RANGE PLANS CONCERNING ONE'S ESTATE. Page 2

CERTAINLY, ONE STARTS TO THINK OF PHILANTHROPY AS OPPOSED TO PURELY BUSINESS INTERESTS. THE PHILANTHROPY THAT MOST CLOSELY REPRESENTED MY INTERESTS WAS THE FOUNDING OF A MEDICAL RESEARCH INSTITUTE.

THIS WOULD HAVE TWO ADVANTAGES:

1. A SUBSTANTIAL PORTION OF THE TECHNICON STOCK, PROBABLY A MAJORITY, WOULD BE OWNED BY THE RESEARCH INSTITUTE.

2. IT SEEMED APPROPRIATE SINCE MY SUCCESS HAD BEEN BUILT ON ADVANCES IN MEDICAL TECHNOLOGY, THAT THE PROCEEDS BE UTILIZED TO FURTHER SUCH ADVANCES.

LET ME DEVIATE FOR A MOMENT HERE WITH AN IRONIC OBSERVATION: TODAY WE HEAR CONSIDERABLE CONCERN OF INDUSTRY CONTROLLING ACADEMIA. HERE, WE WOULD HAVE HAD A CASE OF ACADEMIA LITERALLY OWNING AND CONTROLLING A CORPORATION!

BACK TO THE STORY.

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IN 1971, WE STARTED TO FORM AN INSTITUTE.

AFTER MANY FALSE STARTS, LOTS OF PROBLEMS, AND WHAT TURNED OUT TO BE QUITE A LEARNING EXPERIENCE FOR ME, WE FINALLY HAVE ESTABLISHED AN INSTITUTE WHICH YOU MIGHT KNOW AS THE WHITEHEAD

INSTITUTE FOR BIOMEDICAL RESEARCH AT MIT.

I MENTIONED BEFORE THAT THERE WERE TWO IMPORTANT FACTORS IN MY DECISION TO FORM SUCH AN INSTITUTE:

A. THE SENTIMENTAL AND EMOTIONAL ATTACHMENT I FELT TOWARDS PUTTING THE FUNDS BACK INTO MEDICAL RESEARCH, AND

B. KEEP THE OWNERSHIP AND CONTROL OF TECHNICON IN A SINGLE ENTITY UPON MY DEATH.

I MUST TELL YOU THAT A HAS OVERWHELMED B AS A BASIC MOTIVATION.

IN 1980, WHEN TECHNICON MERGED INTO REVLON, THE CONTROL ISSUE NO LONGER WAS RELEVANT. HAPPILY, THIS MERGER PROVIDED THE REQUISITE DIVIDEND STREAM TO FACILITATE THE FUNDING OF THE INSTITUTE.

THUS, WHAT STARTED OUT AS A PHILANTHROPIC SIDELINE ACTIVITY, RAPIDLY TURNED INTO THE MOST IMPORTANT ASPECT OF MY LIFE.

ALONG THE CHECKERED PATH OF PLANNING AND DEVELOPING SUCH AN INSTITUTE, WE WERE EXTREMELY FORTUNATE TO HAVE RECRUITED DAVID BALTIMORE AS OUR FOUNDING DIRECTOR.

DAVID IS A RELATIVELY YOUNG (44 YEARS OLD) NOBEL LAUREATE IN MOLECULAR BIOLOGY, WITH A SPECIALTY IN GENETICS. EQUALLY, OR (MORE IMPORTANT, HE IS A VERY BROAD GAUGED INDIVIDUAL WHO HAS

BEEN WIDELY IDENTIFIED AS A STATESMAN OF SCIENCE.

WE WERE FACED WITH THREE FUNDAMENTAL PROBLEMS IN ESTABLISHING A RESEARCH INSTITUTE, WHICH BRIEFLY CAN BE DESCRIBED AS:

WHAT, WHO, AND WHERE?

WHAT WILL BE THE PROGRAM? WHO WILL CARRY IT OUT? AND, WHERE WILL IT BE DONE?

WITH THE APPOINTMENT OF DAVID, THE WHAT AND WHO WERE PRETTY WELL DECIDED.

HIS INTERESTS, AND PARENTHETICALLY, MINE, LIE IN THE GENERAL AREA OF MOLECULAR BIOLOGY WITH AN EMPHASIS ON CELL DEVELOPMENT,

THE BROAD FIELD OF CELL DEVELOPMENT CAN BE DEFINED AS COVERING EVERYTHING FROM THE WAY A SPERM AND EGG GET TOGETHER TO THE DIFFERENTIATION OF CELLS INTO THE MYRIAD TYPES THAT MAKE UP THE HUMAN BODY.

ALONG THE WAY, ONE POSSIBLY (AND HOPEFULLY) MIGHT PICK UP INFORMATION AS TO HOW A CELL BECOMES DISEASED, AS ILLUSTRATED IN THE MOST DRAMATIC WAY, BY CANCER.

THE WHAT AND THE WHO OF THE WHAT, WHO, AND WHERE WERE OBVIOUSLY ANSWERED BY DAVID AND HIS INTERESTS.

THAT LEFT THE QUESTION OF WHERE.

DAVID, BEING A PROFESSOR AT MIT, QUITE NATURALLY HAD AN AFFINITY FOR THAT INSTITUTION, AND WE OPENED DISCUSSIONS WITH THE MIT ADMINISTRATION.

IT WAS AT THIS POINT I WAS GIVEN A BASIC LESSON IN ACADEMIA.

I HAD ALWAYS VISUALIZED THE CHARACTER OF THE AFFILIATION OF OUR INSTITUTE WITH A UNIVERSITY AS A RATHER LOOSE RELATIONSHIP.

IN OTHER WORDS, I ENVISIONED AN "AFFILIATION" THAT COULD BE DEFINED AS, "ATTACHED TO," RATHER THAN "PART OF."

THIS DIFFERNECE IS MORE THAN SUBTLE.

WHEN ONE IS "ATTACHED TO" A UNIVERSITY, ONE'S STAFF GENERALLY WOULD HAVE TITLES SUCH AS "VISITING PROFESSOR," ASSOCIATE PROFESSOR," AND "ADJUNCT PROFESSOR," ETC.

WHEN ONE IS "PART OF," THE TITLES CHANGE TO JUST PLAIN "PROFESSOR."

THE IMPLICATION HERE IS THAT WHEN ONE IS "PART OF," THE INSTITUTE PROFESSORS HAVE ALL THE RIGHTS AND PRIVILEGES OF THE UNIVERSITY, INCLUDING TENURE, THAT THE UNIVERSITY PROFESSORS HAVE.

THE STICKER HERE IS THAT FROM THE VERY BEGINNING WE HAD

DECIDED THAT OUR INSTITUTE MUST BE INDEPENDENT IN ITS CHOICE OF PERSONNEL AND PROGRAM.

THUS, IN EFFECT, WE WERE PERCEIVED BY SOME OF THE MIT FACULTY AS WHAT MIGHT BE TERMED, "A FOREIGN BODY" INTO THE VERY HEART OF THE UNIVERSITY.

PERHAPS "FOREIGN BODY" IS SOMEWHAT EXAGGERATED, BUT IT CERTAINLY CONTAINS MORE THAN A GERM OF TRUTH, PERHAPS THIS EXPLANATION WILL HELP YOU TO UNDERSTAND THE CONSIDERABLE CONTROVERSY THAT OUR INTERESTS CREATED AT MIT.

NOT UNNATURALLY, SOME OF THE FACULTY FELT THREATENED BY OUR "INVASTION."

THE ROUGH TERMS OF THE DEAL THAT WE WORKED OUT WITH

 \$7.5 MILLION WOULD BE PROVIDED TO MIT PRINCIPALLY FOR THE DEPARTMENT OF BIOLOGY AND RELATED DEPARTMENTS. IN RETURN, 2
PROFESSORSHIPS WOULD CARRY THE WHITEHEAD INSTITUTE NAME.

2. THE BOARD OF DIRECTORS OF THE INSTITUTE IS COMPLETELY INDEPENDENT OF MIT AND HAS SOLE DISCRETION OVER PERSONNEL AND PROGRAM WITH THE EXCEPTION THAT THE INSTITUTE WILL ACCEPT THREE MEMBERS TO THE BOARD FROM MIT, SUBJECT TO THE APPROVAL OF THE INSTITUTE BOARD.

3. MIT WILL ACCEPT UP TO 20 JOINT FACULTY APPOINTMENTS. SUCH APPOINTMENTS WILL BE PROPOSED BY THE WHITEHEAD INSTITUTE, SUBJECT TO APPROVAL BY MIT AND WILL BE FULLY PAID FOR BY THE INSTITUTE.

4. THE DIRECTOR WILL HAVE TO BECOME A MEMBER OF THE MIT FACULTY. THIS EFFECTIVELY GIVES MIT A DEGREE OF CONTROL SINCE THE APPOINTMENT OF A DIRECTOR WILL HAVE TO BE ACCEPTED BY MIT.

5. THE ONLY OTHER ISSUE OF SUBSTANCE WAS PATENT POLICY.

IN THE EVENT OF ANY PATENTABLE DISCOVERIES BY WHITEHEAD INSTITUTE SCIENTISTS, REMUNERATION FOR SUCH PATENTS WILL BE SPLIT 50/50 BETWEEN MIT AND THE INSTITUTE AFTER PAYMENT OF ALL EXPENSES.

THE PATENT ISSUE GOT TO BE A RATHER DIFFICULT ONE, TRADITIONALLY, MIT HAS HAD A HISTORY OF NON-EXCLUSIVE LICENSING OF PATENTS, FORCED BY A DESIRE TO KEEP DISCOVERY IN THE PUBLIC DOMAINE. OUR GROUP HAS AN EQUALLY STRONG FEELING THAT FOR MAXIMUM EXPLOITATION OF PATENTS, AND THEREFORE, MAXIMUM PUBLIC BENEFIT, EXCLUSIVE LICENSES MOST OFTEN ARE NECESSARY.

I BELIEVE THAT THE MIT VIEW HAS CHANGED SOMEWHAT OVER THE YEARS MORE TOWARD OUR WAY OF THINKING, BUT CERTAINLY THERE IS STILL STRONG FEELING ON THE PART OF SOME OF THE FACULTY AGAINST THE PATENTING SYSTEM AND EXCLUSIVE LICENSES FOR EXPLOITATION.

THE DEABTE AT MIT CARRIED ON FOR MORE THAN SIX MONTHS.

A VERY VOCAL MINORITY OF THE FACULTY PETITIONED AND SPOKE OUT AGAINST THE AFFILIATION.

THE ADMINISTRATION OF MIT DID NOT TAKE A PUBLIC POSITION, OR EVEN A PRIVATE ONE, WITH THE FACULTY IN ANY WAY, UNTIL THE END OF THE DEBATE.

INTERESTINGLY, AT THE FINAL FACULTY MEETING IN DECEMBER OF LAST YEAR, THE FACULTY VOTED OVERWHELMINGLY, ABOUT EIGHT TO ONE, IN FAVOR OF THE AFFILIATION.

THE MIT CORPORATION THEN VOTED ALMOST UNANIMOUSLY TO FORM THE AFFILIATION.

RECENTLY, A REPORTER ASKED ME WHETHER I WOULD DO IT ALL OVER AGAIN.

MY ANSWER WAS AN UNEQUIVOCAL, "YES."

CERTAINLY, I GOT VERY TIRED OF BEING MISQUOTED BY THE PRESS, OF HAVING MY MOTIVES QUESTIONED, AND OF THE ENORMOUS AMOUNT OF CONFUSION THAT OUR ADVENTURE ENGENDERED.

> HOWEVER, IN RETROSPECT, IT WAS HANDLED BEAUTIFULLY. THERE WAS FULL AND OPEN DEBATE.

EVERY ASPECT OF THE AFFILIATION WAS THOROUGHLY AIRED.

AS DAVID BALTIMORE REFLECTED ON THE NIGHT OF OUR FACULTY VICTORY, "DEMOCRACY IS A WONDERFUL THING...IF YOU WIN!"

A VICTORY SUCH AS WE HAD AFTER SUCH A PUBLIC AIRING IS FAR MORE CONCLUSIVE THAN A DEAL NEGOTIATED IN PRIVACY BETWEEN A UNIVERSITY ADMINISTRATION AND OURSELVES.

THE UNION IS NOW PERCEIVED ON THE MIT CAMPUS AS A TOTAL ONE,

AND NOT SOMETHING NEGOTIATED IN SECRECY BY THE ADMINISTRATION.

THIS, OF COURSE, IS TERRIBLY IMPORTANT.

A MOMENT AGO, I USED THE WORD "CONFUSION" ENGENDERED BY OUR ADVENTURE.

AT ABOUT THE SAME TIME WE WERE NEGOTIATING WITH MIT, THE HOECHST COMPANY WAS DOING THE SAME AT MASSACHUSETTS GENERAL HOSPITAL. UNFORTUNATELY, THEY BOTH HIT THE PRESS AT THE SAME TIME, AND THE PRESS, SOME MIT FACULTY, AND THE PUBLIC HAD DIFFICULTY IN UNDERSTANDING THE DIFFERENCES BETWEEN THE TWO ACTIVITIES.

THE ONE MAJOR DIFFERENCE IS THAT HOECHST AS AN INDUSTRIAL CONCERN IS PAYING FOR RESEARCH AT MASSACHUSETTS GENERAL.

THE RESULTS OF SUCH RESEARCH ARE AVAILABLE TO THE HOECHST

OUR INSTITUTE, ON THE OTHER HAND IS A PURELY PHILANTHROPIC

IN THE UNLIKELY EVENT THAT PROFIT MAKING OPPORTUNITIES ARISE, ANY PROFITS DERIVED WILL GO BACK TO THE INSTITUTE--AND NOT TO THE DONOR.

SOME MIT FACULTY MEMBERS WERE CONCERNED THAT SOMEHOW OUR ENDEAVORS REALLY MASKED A VEHICLE TO MAKE A PROFIT FOR MYSELF, REVLON, OR OTHER OF MY BUSINESS INTERESTS.

THE PRESS, PUBLIC, AND EVEN SOME OF THE MIT FACULTY HAD CONSIDERABLE DIFFICULTY IN UNDERSTANDING THIS DIFFERENTIATION.

I BELIEVE THAT EVEN TODAY, SOME PEOPLE SUSPECT MY MOTIVES AND ARE SURE THERE IS A HIDDEN AGENDA SOMEWHERE TO TURN THE ACTIVITIES OF THE INSTITUTE TO MY PERSONAL PROFIT.

As a good friend and Institute Board member recently suggested to me, "A commitment to give away \$100 million is a poor start to making profits."

I BELIEVE OUR TYPE OF INSTITUTE WILL PROBABLY NOT REPLICATE ITSELF TOO OFTEN IN THE FUTURE.

I SAY THIS PROBABLY FROM THE FEELING THAT THERE ARE NOT TOO MANY PEOPLE EITHER ABLE OR WILLING TO DONATE SUMS OF THIS MAGNITUDE FOR PURELY PHILANTHROPIC CAUSES.

IF SUCH PEOPLE DO COME FORTH, IT IS UNLIKELY THEY WILL FOLLOW THE WHITEHEAD INSTITUTE EXAMPLE. IT WOULD BE FAR EASIER TO SET UP A FOUNDATION TO PROVIDE FUNDS FOR WORTHY CAUSES OR ALTERNATIVELY, MAKE A GIFT DIRECTLY TO AN EXISTING UNIVERSITY TO SET UP AN INSTITUTE.

IN FACT, SOME OF THE MEMBERS OF THE BOARD OF GOVERNORS AT MIT STILL DO NOT UNDERSTAND WHY "WE DID NOT JUST MAKE A GIFT TO MIT." UNDOUBTEDLY, IF I DID NOT HAVE THE BACKGROUND I DO, I WOULD CERTAINLY HAVE OPTED FOR THE FOUNDATION OR THE GIFT TO THE UNIVERSITY ROUTE,

IT'S FAR LESS RISKY, INVOLVES CONSIDERABLY LESS PERSONAL PUBLICITY, AND ONE RETAINS A CONTINUING POSITION OF POWER.

AGAINST THIS, I HAVE THE VERY STRONG FEELING THAT BY SETTING UP A SEPARATE RESEARCH INSTITUTE, WE CAN HAVE A MORE PROFOUND EFFECT ON SOCIETY.

UNDOUBTEDLY, IN THE FUTURE, THE HOECHST MODEL WILL BE MORE GENERALLY SEEN AS A SOURCE OF UNIVERSITY FUNDING THAN THE PHILANTHROPIC APPROACH.

TO MY MIND, THERE IS A REAL PROBLEM WITH THIS MODEL.

HAVING SPENT MY LIFE IN INDUSTRY, AND PARTICULARLY ONE WITH A HEAVY COMMITMENT TO RESEARCH AND DEVELOPMENT, I CAN APPRECIATE FUNDAMENTAL DIFFERENCES BETWEEN AN ACADEMIC LABORATORY AND AN INDUSTRIAL ONE.

IN THE PAST, UNIVERSITY LABORATORIES HAVE BEEN

THE REASON, I BELIEVE, IS SIMPLE. UNIVERSITY LABORATORIES ARE ESSENTIALLY "OPEN."

AS SOON AS A DISCOVERY IS MADE, IT IS BROADCAST OVERTLY.

IN THEORY, AND OFTEN IN PRACTICE, RESEARCH IS OPEN TO OTHER SCIENTISTS EVEN BEFORE PUBLICATION.

INDUSTRIAL RESEARCH IS QUITE ANOTHER KETTLE OF FISH. WE, IN INDUSTRY, GO TO GREAT LENGTHS TO PRESERVE SECRECY IN RESEARCH.

I BELIEVE THIS IS QUITE NATURAL, BECAUSE THE ECONOMIC OPPORTUNITIES CREATED BY RESEARCH CAN BE DESTROYED QUICKLY BY EARLY DISCLOSURE.

WHAT THEN, WILL THE FUTURE HOLD?

ON THE ONE HAND, WE HAVE THE PROSPECT OF CORPORATION FUNDING (AND OWNING) RESEARCH LABORATORIES IN UNIVERSITIES.

ON THE OTHER, WE HAVE OUTSTANDING RESEARCH SCIENTISTS UNDER CONTRACT TO COMMERCIAL COMPANIES, AND, ON THE THIRD HAND, WE HAVE THE TRADITION IN ACADEMIA OF OPEN LABORATORIES.

OBVIOUSLY, THIS POSES POTENTIAL CONFLICT.

BOTH GOVERNMENT AND PHILANTHROPIC FUNDS ARE NOT KEEPING PACE WITH INCREASED NEEDS. CORPORATIONS FILL THE GAP, BUT HOW CAN A CORPORATION FUND A LABORATORY IF THAT LABORATORY'S CHIEF SCIENTISTS ALREADY HAVE COMPETITIVE COMMERCIAL INTERESTS?

TODAY, IT IS ALMOST THE RULE FOR OUTSTANDING UNIVERSITY SCIENTISTS TO HAVE CONTRACTS WITH COMMERCIAL COMPANIES---AT LEAST IN THE GENETIC ENGINEERING FIELD.

CERTAINLY, NO FIRM WILL FUND A LABORATORY IF THE DISCOVERIES OF SUCH A LABORATORY CAN END UP IN THE HANDS OF COMPETITORS.

IF WE DEPEND ON CORPORATE INVESTMENT, WILL WE TRANSFORM OUR GREAT FUNDAMENTAL RESEARCH LABORATORIES TO THOSE WITH PRODUCT ORIENTATION?

IT IS CERTAINLY UNREASONABLE TO EXPECT A CORPORATION TO FUND RESEARCH THAT DOES NOT RESULT IN A PRODUCT OR A PROPRIETARY PROCESS.

THUS, WE LOOK AT THE ALTERNATIVES:

- 1. PHILANTHROPY (PRIVATE AND CORPORATE).
- 2. CORPORATE INVESTMENT.
- 3. SHRINKAGE OF THE RESEARCH EFFORT.
- 4. GOVERNMENT FUNDING.

I THINK WE CAN REALISTICALLY AGREE THAT PHILANTHROPY IS INSUFFICIENT. THE CORPORATE INVESTMENT IS FRAUGHT WITH DANGER TO THE SYSTEM. SHRINKAGE APPEARS UNTHINKABLE AT A TIME WHEN THE NEEDS ARE PROLIFERATING.

THIS, THEN, LEAVES US WITH GOVERNMENT SUPPORT. BUT HOW CAN GOVERNMENT CONTINUE TO SUPPORT UNIVERSITIES AT A TIME WHEN THE CITIZENRY IS ALREADY OVERBURDENED WITH TAXES?

I HAVE A SUGGESTION TO MAKE HERE.

I BELIEVE THAT IF LEGISLATION COULD BE ENACTED TO ALLOW A <u>SMALL</u> PERCENTAGE OF CORPORATE EARNINGS (1 OR 2%) TO BE PROVIDED TO UNIVERSITIES (AND, PERHAPS, TO OTHER GOOD CAUSES) IN LIEU OF TAXES, A GREAT STREAM OF SUPPORT FOR THE UNIVERSITIES WOULD BE UNLEASHED.

IF TAX CREDITS WERE ALLOWED, AS OPPOSED TO CURRENT TAX POLICY

OF ALLOWING ONLY DEDUCTIONS FOR CHARITABLE OR BUSINESS-RELATED PROJECTS, WE WOULD GREATLY ENCOURAGE CORPORATE PHILANTHROPY.

IRONICALLY, TODAY A CORPORATE INVESTMENT FOR PROFIT HAS IDENTICAL TAX TREATMENT AS A CORPORATE PHILANTHROPIC DONATION.

THUS, IF CORPORATIONS WERE ALLOWED A DIRECT TAX CREDIT FOR MONIES DIRECTED TOWARD PHILANTHROPIC CAUSES, I BELIEVE MOST CORPORATIONS WOULD OPT TO MAKE SUCH DONATIONS.

AT PRESENT THERE IS NO INCENTIVE FOR CORPORATE DONATIONS. TAX TREATMENT FOR MONEY SPENT FOR ADVERTISING, RESEARCH AND DEVELOPMENT, AND YES, EVEN PLANT IMPROVEMENT, ARE TREATED IN THE SAME WAY AS DONATIONS FOR TAX PURPOSES.

WHAT BUSINESSMAN CAN JUSTIFY DONATING THE COMPANY'S MONEY AS OPPOSED TO SPENDING IT TO IMPROVE HIS BUSINESS?

UNDER "THE DONATION IN LIEU OF TAXES" PLAN, THE BUSINESS OF BUSINESS WOULD NOT BE AFFECTED, YET THE UNIVERSITIES WOULD BENEFIT ENORMOUSLY.

I BELIEVE THIS PLAN WOULD HAVE FAR REACHING SOCIETAL BENEFITS. AFTER ALL, ONE OF THE THINGS THAT MAKES THIS COUNTRY GREAT IS THE SYSTEM AND TRADITION OF PRIVATE PHILANTHROPY.

IN THE FINAL ANALYSIS, THE GOVERNMENT WOULD NOT BE THE LOSER, AS IT IS ALWAYS GOVERNMENT THAT MAKES UP THE DEFICITS OF THE PRIVATE SECTOR.

CERTAINLY, THE ULTIMATE BENEFICIARIES WOULD BE THE NATION AND THE WORLD WHO WOULD REAP THE BENEFIT OF TREMENDOUS INCREASE IN THE OVERALL RESEARCH AND DEVELOPMENT EFFORT.

I STARTED THIS TALK WITH THE STATEMENT THAT I AM NOT A PHILOSOPHER, BUT RATHER A PRAGMATIST. I APOLOGIZE FOR THE PHILOSOPHIC NATURE OF SOME OF THESE REMARKS, BUT I DO BELIEVE THAT WE ARE FACED WITH DIFFICULT CHOICES TO SEEMINGLY INSOLUABLE PROBLEMS AND I FEEL CONSTRAINED TO PUT FORTH ONE MAN'S POINT OF VIEW.

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