I. INTRODUCTION


II. 1981 IN PERSPECTIVE

PERIPHERALS

SOLD OUT OF PRODUCTS FOR THE REMAINDER OF THE YEAR. RESOURCES WERE SET IN PLACE TO INCREASE PRODUCTION AS MUCH AS TWO TO THREE TIMES ON SOME PRODUCTS. FOR EXAMPLE, THE LARGEST DISK DRIVE -- THE 635 MEGABYTE MODEL -- WAS BOOSTED FROM 25 to 75 UNITS PER DAY, THE 300 MEGABYTE MODEL FROM 45 TO 110 UNITS PER DAY. BUT, BY THE END OF THE SECOND QUARTER, CROSS CURRENTS BEGAN: WHILE WE STILL COULDN'T COME CLOSE TO MEETING THE DEMAND FOR LARGE DRIVES -- ESPECIALLY THE IBM PLUG-COMPATIBLE VERSION -- THE DEMAND FOR SMALLER CAPACITY PRODUCTS BEGAN TO SOFTEN. AFTER MID-SUMMER, THE PUSH OUTS AND CANCELLATIONS BEGAN ON A BROADER BASIS -- ESPECIALLY FROM MPI'S PARENTS (NCR REDUCED ITS CALL-OFFS 35 PERCENT, HONEYWELL, ICL AND CONTROL DATA EACH WERE ABOUT TEN PERCENT). WHILE THIS DOWN TURN IN SHIPMENTS WAS OCCURRING, WE STILL COULD ONLY QUOTE TWELVE-MONTH DELIVERY ON THE PLUG-COMPATIBLE MODEL -- WHICH MEANT BUSINESS GOING TO STORAGE TECHNOLOGY CORP. AND OTHER PLUG MANUFACTURERS.

IN ADDITION, WITH THE CHANGE IN DEMAND, WE ENDED UP WITH UNEVEN PLANT LOADING. TO AVOID LAY-OFFS IN ONE PLANT WHILE HIRING ELSEWHERE, NO LESS THAN 14 MAJOR PRODUCTION SHIFTS WERE MADE FROM ONE PLANT TO ANOTHER.

MOREOVER, EVEN THOUGH WE COMPROMISED WITH MAJOR CUSTOMERS ON THEIR COMMITTED OFF-TAKE, SOME OF THEM WERE STILL BUILDING INVENTORY. THIS WILL FURTHER DEPRESS THEIR NEEDS IN THE FIRST AND SECOND QUARTERS OF 1982.
IN THE FINAL OUTCOME FOR THE YEAR, PERIPHERALS ACHieved THEIR BUDGETED PRE-TAX PROFIT OF $151M EVEN THOUGH REVENUE FELL SHORT OF PLAN BY $66M. MOREOVER, THIS WAS ACHIEVED IN SPITE OF THE FACT THAT PERIPHERALS SPENT $8.1 MORE THAN BUDGETED TECHNICAL EFFORT TO INCREASE THE MOMENTUM BEHIND CRITICAL PROGRAMS.

THE FINANCIAL IMPLICATIONS FOR 1982 OF WHAT HAS OCCURRED OVER THE PAST EIGHT MONTHS ARE CLEAR: WE ARE IN EXACTLY THE OPPOSITE POSITION WE WANT TO BE IN, WITH THE FIRST HALF BEING WEAK AND SOMewhat ARTIFICIALLY HELD BACK BY THE EXCESS INVENTORY THE MAJOR OEMs ACCUMULATED LAST YEAR -- AND THE SECOND HALF FORECASTED TO BE RELATIVELY STRONG. MEANWHILE WE HAVE TO NOT ONLY SMOOTH PLANT LOADINGS BUT ACTUALLY CONTINUE AT LEAST A MODEST BUILD-UP OF CAPACITY FOR LATER THIS YEAR AND 1983.

IF ALL THIS BEGINS TO SOUND LIKE A REPORT ON A COMMODITY BUSINESS, IT SHOULD -- FOR THAT IS BECOMING A DOMINANT CHARACTERISTIC IN THIS PART OF CONTROL DATA'S BUSINESS. BUT IT ISN'T QUITE THAT SIMPLE, FOR AS WE HAVE SAID OVER AND OVER, THERE IS AN INTENSE TECHNOLOGY RACE AS WELL.


SYSTEMS


BUT LAST YEAR, IN 1981, WE RECEIVED EIGHT ORDERS. THREE CYBER 205's WERE SHIPPED AND ACCEPTED IN ADDITION TO COMPLETING A SYSTEM FOR INTERNAL DEVELOPMENT USE. SO, 1981 WAS TRULY A
WATERSHED. NEXT YEAR, BY THE WAY, THE FORECAST IS FOR TWELVE SHIPMENTS -- AND TWELVE MORE ORDERS -- A SIGNIFICANT CHANGE FROM THE STRUGGLE TO GET THREE ORDERS JUST TWO YEARS AGO.

1981 WAS A WATERSHED YEAR FOR COMPUTER SYSTEMS IN ANOTHER REGARD AS WELL. THE "EARLY BIRD" PROGRAM WAS DESIGNED TO SELECTIVELY SELL AND INSTALL THE MID-RANGE MODEL OF THE NEW "S" SERIES; NAMELY, THE S-2 WHICH WILL BE ANNOUNCED IN APRIL OF THIS YEAR AS THE 170-835. THE OVERALL OBJECTIVES WERE TO SELL THESE SYSTEMS INTO A REVENUE PRODUCING ENVIRONMENT TO IDENTIFY TECHNICAL AND PERFORMANCE ISSUES PRIOR TO ANNOUNCEMENT AND TO BUILD THE SUPPORT TEAMS AND PROCESSES FOR THE NEW LINE AS WELL AS THE CREDIBILITY OF THE LINE AT ANNOUNCEMENT TIME.


DATA SERVICES

FROM A STRATEGIC PERSPECTIVE, PERHAPS NOTHING REFLECTS THE CHANGE IN CONTROL DATA MORE THAN THE 1981 RESULTS IN DATA SERVICES. OVERALL, DATA SERVICES PROFITS GREW BY OVER 67 PERCENT AND PROFITABILITY, THAT IS ROIC, BY MORE THAN FIVE FULL PERCENTAGE POINTS TO 24.8 PERCENT.

TIME DOESN'T PERMIT ME TO GO OVER ALL THE BUSINESSES WHICH MAKE UP DATA SERVICES. BUT IF WE WERE TO REVIEW THEM, THE RESTRUCTURED U.S. ECONOMY WHICH WE DISCUSSED AT THE STRATEGIC PLAN REVIEW IN SEPTEMBER IS CLEARLY EVIDENT. THIS IS TRUE BOTH IN TERMS OF GEOGRAPHY AND INDUSTRY SECTORS. MORE IMPORTANT, THE BALANCE WHICH DATA SERVICES BRINGS TO CONTROL DATA AND THE MOMENTUM THIS BUSINESS GENERATES EVEN IN RELATIVELY BAD TIMES IS EVIDENT.
A BRIEF LOOK AT TWO DATA SERVICES BUSINESSES CAN PROVIDE A LITTLE PERSPECTIVE ON THIS. BACK IN 1970, WHEN THE CYBER 70 WAS INTRODUCED, ARBITRON WAS A STRUGGLING $9 MILLION A YEAR BUSINESS OPERATING AT A LOSS AND THUS CONTRIBUTING TO THE OVERALL WOE. LAST YEAR, ARBITRON GREW REVENUE 21 PERCENT TO $66.4M AND HAS AN ROR OF 21.2 PERCENT. A QUICK CALCULATION SHOWS THAT THIS CONTRIBUTION EQUALS ONE-THIRD THAT OF OUR COMPUTER SYSTEMS BUSINESS.

BUT THE STAR PERFORMANCE OF DATA SERVICES IN TERMS OF COMBINED GROWTH AND IMPROVED PROFITABILITY WAS U.S. CYBERNET. AS YOU CAN SEE FROM THIS NEXT CHART, NOT ONLY DID THE ROIC EXCEED 20 PERCENT BUT (Note footnote) THEY ACCELERATED SOME $8 MILLION CAPITAL SPENDING PREVIOUSLY PLANNED FOR 1982. BUT THE NEXT CHART SHOWS 1981 IN AN EVEN MORE DRAMATIC LIGHT. OUR CYBERNET BUSINESS HAD ITS FIRST MILLION-DOLLAR REVENUE MONTH IN 1966. IN FACT, IT HAD ITS SECOND ONE MILLION-DOLLAR MONTH IN 1969. FROM THAT POINT, IT TOOK APPROXIMATELY TWO YEARS FOR EACH MILLION DOLLARS UNTIL 1977 WHEN THE PERIOD BECAME ONE YEAR. THIS YEAR TWO NEW MILLION-DOLLAR MILESTONES WERE SET IN ONE YEAR.

AND, AS WITH COMPUTER SYSTEMS, THE CYBER 200 CAME INTO ITS OWN WITH REVENUE INCREASING OVER THREE-FOLD FROM $1.5 MILLION IN 1980 TO $5.0 IN 1981.
AND, AS WITH OTHER BUSINESSES, U.S. CYBERNET CONTINUED TO
INVEST IN ITS FUTURE. ONE SIGNIFICANT ADDITION CAME IN THE
FORM OF AN ACQUISITION -- INFORMATION SYSTEMS DESIGN -- A SMALL
COMPANY SPECIALIZING IN COMPUTER-AIDED DESIGN FOR ELECTRICAL
ENGINEERS. ACTUALLY, YOU MAY RECALL, ISD WAS A SUBSIDIARY OF A
SMALL HOLDING COMPANY WHICH HAD A TERMINALS BUSINESS AS WELL.
THE ENTREPRENEUR WANTED TO EXPAND HIS TERMINALS BUSINESS AND
CHOSE TO SELL THE SOFTWARE/SERVICES PART OF HIS BUSINESS
BECAUSE OF THE TECHNICAL AND MARKETING EXPENSE ASSOCIATED WITH
THAT PART OF THE BUSINESS. ISD, IN SIX MONTHS OF 1981,
GENERATED 5 MILLION DOLLARS IN REVENUE AND NO PROFIT. IN 1982,
REVENUE SHOULD EXCEED $15 MILLION AND WILL GENERATE A MODEST
PROFIT.

EDUCATION

IN TERMS OF NUMBERS, 1981 WAS NOT A WATERSHED YEAR FOR
EDUCATION THOUGH REVENUE INCREASED BY 35 PERCENT OVER 1980 WITH
CBE GROWING BY MORE THAN 50 PERCENT AND CONTROL DATA INSTITUTES
BY 15 PERCENT.

BUT, IN MANY OTHER WAYS, I THINK WE WILL LOOK BACK AND SEE THAT
1981 WAS THE YEAR WHEN A WHOLE LOT OF THINGS FINALLY BEGAN TO
FALL INTO PLACE. 1982 IS THE YEAR FOR US TO SOLIDIFY THAT
CIRCUMSTANCE AND I'LL COME BACK TO IT. BUT FIRST, LET'S LOOK
AT SOME KEY NON-NUMERIC FACTS ABOUT 1981.

FOR PLATO IN GENERAL, THE COURSEWARE AREA WAS WHERE THE MOST SIGNIFICANT EVENTS TOOK PLACE IN 1981 -- NOT IN ANY SPECIFIC COURSEWARE DEVELOPMENT BUT WITH REGARD TO AUTHORING CAPABILITY. AS MANY OF YOU KNOW, A PRIME NECESSITY HAS BEEN TO REDUCE THE COST OF COURSEWARE DEVELOPMENT. BUT THE ADVENT OF THE CD110 HAS ALSO CRYSTALIZED THE NEED TO USE PREVIOUSLY DEVELOPED COURSEWARE ON DELIVERY VEHICLES OTHER THAN THE CENTRAL PLATO SYSTEM. IT HAS SPOTLIGHTED THE AWKWARDNESS AND COST OF DOING SO USING THE CURRENT AUTHORING SYSTEM.

FORTUNATELY, SOME OF OUR MORE INNOVATIVE PEOPLE IN A REMOTE PART OF THE PROFESSIONAL SERVICES DIVISION SAW THIS NEED TWO OR THREE YEARS AGO AND BEGAN DEVELOPING DUOLOGUE -- AN AUTHORING SYSTEM -- WHICH WILL BE ANNOUNCED THIS MONTH AS THE CD-2 AUTHORING SYSTEM. WITHOUT GETTING INTO A LOT OF DETAIL, IT NOT ONLY PRODUCES WHAT WE CALL "PORTABLE" COURSEWARE, IT DOES SO AT
HALF THE COST OF THE PRESENT AUTHORING SYSTEM. THERE ARE LIMITATIONS TO CD-2 BUT WITHIN EIGHTEEN MONTHS, ANOTHER AND MORE POWERFUL VERSION IS PLANNED WHICH WILL REMOVE THE LIMITATIONS AND CUT COSTS IN HALF ONCE AGAIN. THE IMPORTANCE OF THE LEVERAGE THIS BRINGS CAN HARDLY BE OVERSTATED.

IN STILL ANOTHER WAY, 1981 SAW MORE LEVERAGE APPLIED TO COURSEWARE DEVELOPMENT AS WELL. THIS IS THE INDUSTRY CONSORTIUM APPROACH TO COURSEWARE DEVELOPMENT. THIS APPROACH ALSO IS A POWERFUL WAY TO GAIN ACCEPTANCE WITHIN A SPECIFIC USER COMMUNITY.

THE LOWER DIVISION ENGINEERING CURRICULUM IS PROBABLY THE BEST CASE IN POINT. IT CONTAINS THE 65 UNITS OF CREDIT REQUIRED AT THE FRESHMAN AND SOPHOMORE COLLEGE LEVEL FOR THOSE PURSUING ENGINEERING DEGREES. THIS ENTIRE PROGRAM IS BEING DESIGNED ON PLATO. THIS PROGRAM ALSO INVOLVES CLOSE COOPERATION WITH FIVE UNIVERSITIES WHO ARE PARTICIPATING IN THE DEVELOPMENT EFFORT.

A SECOND MAJOR PROGRAM IS THE CHEVRON CONSORTIUM. IT CAME ABOUT TO ADDRESS THE COMMON NEED OIL COMPANIES HAVE FOR TRAINING GEOPHYSICISTS. THE CONSORTIUM PRESENTLY CONSISTS OF THIRTEEN OIL COMPANIES AND MOST OF THE "MAJORS" ARE REPRESENTED. THE INITIAL COURSE, PRESENTLY UNDER DEVELOPMENT, IS "INTRODUCTION TO GEOPHYSICS." THE COURSEWARE DEVELOPMENT
COSTS ARE BEING FUNDED BY THE MEMBER COMPANIES. WE ALSO HAVE A STANDARD PUBLISHING AGREEMENT AS PART OF OUR CONTRACT WITH CHEVRON WHEREIN THAT COURSE WILL BE MARKETED BY CONTROL DATA TO NON-CONSORTIUM MEMBERS WITH CONSORTIUM MEMBERS RECEIVING THEIR RETURN THROUGH OUR STANDARD PUBLISHED COURSEWARE ROYALTY ARRANGEMENT.

ONE LAST NOTE WITH REGARD TO EDUCATION: MAJOR PROGRESS HAS BEEN MADE IN THESE AREAS TO USE STANDARD CORPORATE PRODUCTS FOR THE DELIVERY OF PLATO. FIRST, PLANS HAVE BEEN MADE TO USE THE VIKING TERMINAL AS THE NEXT LINE OF TERMINALS FOR PLATO DELIVERY. THIS SAME VIKING HARDWARE, BY THE WAY, WILL PROVIDE US A COST REDUCED CD110 MICRO COMPUTER.

SECOND, IN MID-1982, WE Began IMPLEMENTING A PROGRAM TO ALLOW PLATO TO TAKE ADVANTAGE OF THE ECONOMIES OF SCALE OF THE STANDARD DATA SERVICES NETWORK. FULL IMPLEMENTATION WILL REQUIRE TWO MORE YEARS.

THE THIRD PROJECT INITIATED WILL ENABLE PLATO TO OPERATE AS AN APPLICATION UNDER NOS ON THE CYBER 170/800 SERIES. THIS PROJECT MADE SIGNIFICANT PROGRESS AND WE ARE CONFIDENT THAT THIS APPLICATION CAN BE A MAJOR PART OF THE 170-800 SERIES ANNOUNCEMENT I REFERENCED EARLIER.
FINANCIAL SERVICES

NEXT, LET'S LOOK AT COMMERCIAL CREDIT AND OUR FINANCIAL SERVICES BUSINESS. THIS NEXT CHART REALLY SAYS IT ALL. STRATEGICALLY WE ARE TIED TO THAT ROLLER COASTER AND THERE IS NOTHING MUCH WE CAN DO EXCEPT RIDE IT. THAT WE DID IN 1981 (AND 1980 ALSO, IF YOU RECALL). IRONICALLY, THOUGH WE PLANNED FOR VOLATILITY IN MONEY COSTS AND FORECAST YEAR-END RATES ALMOST PERFECTLY, THE PATH BY WHICH PLAN AND ACTUAL WRITHED ALONG TOWARD YEAR END WERE QUITE DIFFERENT. THERE IS NO NEED TO DWELL HERE ON THIS AND OTHER FACETS OF THE STRATEGIC DILEMMA WITH WHICH COMMERCIAL CREDIT HAS STRUGGLED BUT IT IS NECESSARY TO REMIND OURSELVES OF THE BOTTOM LINE OF THAT DILEMMA AND IT IS HERE ON THE NEXT CHART (ROE).

BUSINESS CENTERS

WELL FINALLY, THEN, WITH REGARD TO 1981, LET ME COMMENT ON THE BUSINESS CENTERS. 1981 WAS THE FIRST FULL YEAR OF BUSINESS CENTER OPERATIONS. AS YOU KNOW, WE ORIGINALLY STARTED BUSINESS CENTERS BOTH IN THE COMPUTER BUSINESS AND IN COMMERCIAL CREDIT. IN TOTAL, WE BEGAN 1981 WITH A BASE OF THIRTEEN FULL-SIZE CENTERS AND 29 SATELLITES. DURING THE YEAR, A NETWORK OF 54 FULL-SIZE AND 55 SATELLITE CENTERS WAS BUILT. TO ACHIEVE THIS GROWTH, AN ORGANIZATIONAL NUCLEUS WAS BUILT TO HANDLE THE PLANNING, LOCATING, BUILDING, STAFFING, TRAINING, OUTFITTING, MERCHANDISING, AND CONTROLLING OF A 109-CENTER OPERATION.

AS NOTED, WE HAVE NOW CONSOLIDATED SMALL BUSINESS EFFORTS IN COMMERCIAL CREDIT. THIS INCLUDES NOT ONLY THE TWO BUSINESS CENTER ORGANIZATIONS BUT THE SMALL BUSINESS SERVICES OF SBC AND NEW PERSONNEL SERVICES AS WELL. THIS ORGANIZATION WILL BETTER ENABLE US TO SERVE OUR BASE OF SMALL BUSINESS CUSTOMERS BY OFFERING A FULL RANGE OF SOLUTIONS AND PACKAGES. IN 1981, BUSINESS CENTERS GENERATED APPROXIMATELY $80 MILLION IN CASH SERVICES. SBC'S DATA PROCESSING SERVICES FOR SMALL BUSINESSES ALSO REALIZED APPROXIMATELY $80 MILLION IN 1981. TOGETHER THEY REPRESENT A SIZEABLE CUSTOMER BASE.
DURING 1981, NEW PRODUCTS AND SERVICES WERE ALSO DEVELOPED. THESE INCLUDE: FINANCIAL PLANNING, PERSONNEL TRAINING, TAX ACCOUNTING, INSURANCE SERVICES AND COMPUTER-BASED EDUCATION, AND THE CD110 MICRO-COMPUTER. FROM ESSENTIALLY NOTHING THE YEAR BEFORE, REVENUES FROM THESE PRODUCTS AND SERVICES GREW TO $1.6 MILLION.

ALL OF THOSE PRODUCTS AND SERVICES I HAVE MENTIONED, HOWEVER, ARE NOT AVAILABLE IN ALL BUSINESS CENTERS. THOSE ORIGINALLY STARTED BY CCC ARE BASICALLY FINANCIAL SERVICES ORIENTED, THE COMPUTER BUSINESS CENTERS ARE BASICALLY ORIENTED TOWARD MICRO-COMPUTER DELIVERED BUSINESS APPLICATIONS WHILE THE SBC SERVICES ARE DELIVERED OUT OF EXISTING SBC BRANCH OFFICES. COURSEWARE SPECIFICALLY AIMED AND PACKAGED FOR VARIOUS KINDS OF SMALL BUSINESSES IS STILL IN ITS INFANCY. THE DEVELOPMENT OF MORE, AND MORE INTEGRATED, PRODUCTS IS A LARGE TASK, THE PERSONNEL TRAINING TASK IS ENORMOUS AND WE ARE ONLY ABOUT 10-15 PERCENT OF THE WAY TOWARDS OUR OBJECTIVE IN TERMS OF NUMBERS OF CENTERS. IN SHORT, 1981 WAS THE BEGINNING -- NOT A TURNING POINT. IN 1981, THE SMALL BUSINESS SERVICES NET LOSS -- PRE-TAX -- WAS $34.5M. IN 1982, IT WILL BE $32.5M.

III. 1982 PERSPECTIVE

WITH THAT, LET ME THEN TURN TO 1982 AND SOME COMMENTS THAT LIKewise ARE INTENDED TO PROVIDE PERSPECTIVE ON THE NUMBERS MARV ROGERS HAS PROVIDED US.
OUR KEY STRATEGIC RESOURCE, AS HAS BEEN SAID MANY TIMES, IS
TECHNICAL EFFORT. SO SOME COMMENTS IN THAT REGARD ARE PROBABLY
THE BEST WAY TO GAIN PERSPECTIVE WITH REGARD TO 1982 PLANS.
AGAIN, LET ME START WITH PERIPHERAL PRODUCTS.

TOTAL TECHNICAL EFFORT EXPENDITURES FOR PERIPHERAL PRODUCTS
WILL BE SOME $116 M. THERE ARE TWO KEY PROGRAMS WITHIN THAT --
ONE SHORT-TERM, ONE LONGER-TERM.

THE KEY TECHNOLOGY IN ACHIEVING HIGHER-DENSITY,
HIGHER-PERFORMANCE MAGNETIC DISK STORAGE DEVICES IS THE
SO-CALLED THIN FILM TECHNOLOGY USED IN THE READ/WRITE HEADS.
MEDIA PRODUCTION TECHNIQUES ALSO ARE INVOLVED. TO DATE, WE
HAVE SPENT $7.0M IN THESE DEVELOPMENTS. IN 1982, $11 MILLION
MORE WILL BE SPENT TO COMPLETE THE PILOT PRODUCTION STAGE.
HERE, AS IN MANY AREAS, TECHNOLOGICAL COOPERATION IS THE KEY TO
BEING ABLE TO AFFORD THE DEVELOPMENT ON A REASONABLE TIME SCALE.

WE HAVE HAD A TECHNOLOGY EXCHANGE AGREEMENT WITH MEMOREX ON THE
THIN FILM HEADS WHICH HAS BEEN QUITE BENEFICIAL. WE ARE NOW
NEGOTIATING FINAL AGREEMENTS FOR A JOINT MANUFACTURING VENTURE
FOR THIN FILM HEADS AND A JOINT DEVELOPMENT AND PILOT
MANUFACTURING FOR THE REQUIRED MEDIA. THE THIN FILM HEAD
MANUFACTURING VENTURE WILL BE 60 PERCENT OWNED BY MPI AND 40
PERCENT BY MEMOREX. THIS INVESTMENT FOR SUCH A FACILITY WOULD
BE $40-$50 MILLION IF WE HAD TO FUND IT OURSELVES. YOU CAN SEE THAT THE SAVINGS FROM THE JOINT VENTURE ARE DRAMATIC COMPARED TO CDC-ONLY FUNDING. THE MEDIA MANUFACTURING VENTURE WILL BE 60 PERCENT OWNED BY MEMOREX AND 40 PERCENT BY CDC.

OUR COMPETITIVENESS IN 1982-1984 DEPENDS HEAVILY ON THESE PROJECTS. BY THE MID-EIGHTIES, MAGNETIC RECORDING SHOULD BE AUGMENTED AND FOR SOME HIGH CAPACITY APPLICATIONS REPLACED BY OPTICAL RECORDING.

OPTICAL RECORDING

OPTICAL RECORDING HAS BEEN IN THE RESEARCH STAGE AT OUR MAGNETIC PERIPHERALS LAB IN COLORADO SPRINGS FOR THE PAST YEAR. SO FAR, WE HAVE EXPENDED $1.7M IN TECHNICAL EFFORT. THE 1982 R&D FUNDING OF $4.5 MILLION WILL RESULT IN A LABORATORY PROTOTYPE IN MID-1982 AND OPERATIONAL ENGINEERING PROTOTYPES BY THE END OF THE YEAR.

THIS INITIAL PRODUCT IS TARGETED TO HAVE A CAPACITY OF ONE BILLION BYTES ON A SINGLE 12-INCH DIAMETER DISK AT A COST OF $2,500 OR LESS. THIS CAPACITY IS EQUIVALENT TO 200,000 PAGES OF TYPICAL TEXT DATA — EQUAL TO SEVEN FILE CABINETS. AS I NOTED A MOMENT AGO, SUCH HIGH CAPACITY, COMPACT SIZE, AND LOW COST PER BILLION BYTE DEVICES SHOULD FIND WIDE POTENTIAL IN THE MID-1980'S. BESIDES DATA STORAGE, THE MEDIA COULD ALSO BE POTENTIALLY USED FOR PLATO COURSEWARE.
IN ORDER TO FACILITATE OUR PROGRAM, WE HAVE SIGNED A LETTER OF INTENT WITH PHILIPS IN HOLLAND, TO JOINTLY DEVELOP AND MANUFACTURE OPTICAL RECORDING DEVICES AND THE ASSOCIATED MEDIA. PHILIPS IS A WORLD LEADER IN OPTICAL MEDIA TECHNOLOGY SO THEY SHOULD BE A GREAT HELP TO US. WITH THE CONSUMMATION OF THIS AGREEMENT, THEY WILL ALSO BE PUTTING $4.5 MILLION IN TO THE OVERALL PROGRAM.

YOU CAN CORRECTLY ASSUME FROM THAT LAST COMMENT THAT WE COULD EASILY JUSTIFY CLOSE TO $10 MILLION IN 1982 ON THIS PROGRAM COMPARED TO THE $4-5 MILLION THE COOPERATION MAKES POSSIBLE.

COMPUTER SYSTEMS


AT THE SAME TIME, WORK HAS BEGUN ON THE SUCCESSOR TO THE CYBER 205 SUPER-COMPUTER AND THIS COMBINED WITH ADDITIONAL SOFTWARE DEVELOPMENT FOR THE 205 WILL LIFT TOTAL 205 TECHNICAL EFFORT TO NEARLY $15 MILLION. WE WOULD HAVE PREFERRED TO BEGIN THE MAJOR
20X EXPENDITURES IN 1983 RATHER THAN 1982 BUT JAPANESE
COMPETITION -- NOT TO MENTION CRAY RESEARCH -- PRECLUDES THAT
COURSE OF ACTION.

ALL-IN-ALL, TECHNICAL EXPENDITURES IN COMPUTER SYSTEMS WILL
INCREASE FROM $112.1M TO $119.1M.

EARLIER I REFERENCED THE CHALLENGE OF THE PRODUCT LINE
TRANSITION FROM THE 170-700 TO THE 170-800 MODELS. I ALSO
REFERENCE THE RAPID BUILD-UP IN PRODUCTION OF CYBER 205'S.
THE COMBINED EFFECT OF THIS ON PROFITABILITY OF COMPUTER
SYSTEMS IS SHOWN IN THE NEXT CHART. (Go over chart briefly.)

BUT, AS I REMARKED EARLIER, THE KEY THING IS WE CAN ACTUALLY
FEEL GOOD ABOUT THAT -- BECAUSE IN SPITE OF EVERYTHING,
COMPUTER SYSTEMS IS STILL CONTRIBUTING NEARLY $50 MILLION IN
PRE-TAX PROFITS AND THAT IS DRAMATICALLY DIFFERENT THAN THE
PREVIOUS RESULTS UNDER SIMILAR CIRCUMSTANCES. NEVERTHELESS, IT
IS OBVIOUS THAT WE HAVE A TREMENDOUS ASSET MANAGEMENT CHALLENGE.

APPLICATIONS

RETURNING TO TECHNICAL EFFORT, HOWEVER, THE LAST KEY
EXPENDITURE I WILL DISCUSS IS THAT FOR APPLICATIONS SOFTWARE.
THIS NEXT CHART SHOWS JUST HOW SIGNIFICANT THIS IS IN THE
OVERALL PICTURE. MORE THAN ONE-QUARTER OF TOTAL TECHNICAL
EXPENDITURES NOW ARE FOR APPLICATIONS. THE PRINCIPAL USE OF THE APPLICATIONS RESOURCE IS, OF COURSE, IN OUR SERVICES BUSINESSES -- EDUCATION, HEALTH CARE, DATA SERVICES AND SO ON. ON THE OTHER HAND, SOME APPLICATIONS SUCH AS COMPUTER-AIDED ENGINEERING DESIGN ARE USED IN BOTH SYSTEMS AND SERVICES. THIS NEXT CHART SHOWS THE PRINCIPAL AREAS OF APPLICATIONS TECHNICAL EFFORT.


SINCE 1980, WE HAVE ENHANCED OUR MECHANICAL CAD/CAM PRODUCT OFFERING WITH AN IMPROVED VERSION OF THE DESIGN/DRAFTING APPLICATION. THIS WAS MADE AVAILABLE ON CYBERNET IN 1981 AND GENERATED OVER $450K OF REVENUE ITS FIRST YEAR. THE STRATEGY IS ALSO TO INTEGRATE MODELING AND ANALYSIS PROGRAMS VIA DATA BASE MANAGEMENT. A FIRST METHOD OF ACHIEVING THIS WAS BEGUN IN 1981. CONTINUING THE LIST OF ADDITIONAL PRODUCTS AND SERVICES IS A MAJOR DATA SERVICES OFFERING WHICH WILL BE ANNOUNCED IN 1982. THAT'S THE APPLICATION CENTER IN WALTHAM, MASSACHUSETTS AND THE CYBER 120 DESIGN DRAFTING PRODUCT.
ADVANCED RESEARCH AT MIT AND PURDUE IS PRODUCING SOME GEOMETRIC
MODELING TECHNIQUES WHICH WILL IN THE FUTURE BECOME A PART OF
THE PRODUCT OFFERING. BY THE WAY, THESE CAD/CAM RESEARCH
PROJECTS ARE LINKED VIA PLATO. THIS HAS PROVIDED AN EXCELLENT
MEANS OF IDEA INTERCHANGE AND PEER REVIEW. IT HAS ALSO HELPED
TO ELIMINATE DUPLICATE RESEARCH.

ALL TOGETHER, MECHANICAL CAD/CAM TECHNICAL EFFORT WILL INCREASE
BY 7.6 PERCENT IN 1982.

THE ELECTRONIC CAD AREA WAS ENHANCED BY A RESEARCH CONTRACT
FROM THE GOVERNMENT'S VHSIC PROGRAM WHICH INCLUDED $2.2M FOR
ECAD SOFTWARE. INCLUDING THIS GOVERNMENT FUNDED EFFORT, ECAD
TECHNICAL EFFORT WILL INCREASE OVER 42 PERCENT IN 1982 TO $8.2
MILLION.

FINANCIAL APPLICATIONS COVER ALL OUR OFFERINGS FOR CONSUMER AND
COMMERCIAL FINANCE, SAVINGS AND LOANS, CREDIT UnIONS AND
COMMERCIAL BANKING. AT PRESENT THESE ARE QUITE DISTINCT
APPLICATION SYSTEMS, BUT THE LONG-TERM STRATEGY CALLS FOR THEM
TO BE INTEGRATED INTO ONE MODULAR SYSTEM. OVER THE NEXT FOUR
YEARS, WE WILL EXPEND SOME $34.9M IN TECHNICAL EFFORT TO
ACOMPLISH THIS.
ONE LITTLE VIGNETTE IS IN ORDER HERE. IN THE MIDDLE 1960'S, A COMPANY CALLED CEIR STARTED SELLING EXCESS NIGHTSHIFT TIME ON ITS IBM EQUIPMENT FOR DEMAND DEPOSIT ACCOUNTING TO SMALL BANKS IN THE LOS ANGELES AREA. CONTROL DATA ACQUIRED CEIR IN 1967. OUR CYBERNET ORGANIZATION ASSUMED RESPONSIBILITY FOR THE L.A. OPERATION, ACQUIRED SOME SOFTWARE, AND CONVERTED THE APPLICATION TO RUN ON CONTROL DATA COMPUTERS. DUE PRINCIPALLY TO THE LABOR INTENSIVE CHECK SORTING ELEMENT OF THE APPLICATION -- ALTHOUGH THERE WERE PLENTY OF OTHER PROBLEMS -- "L.A. BANKING" AS IT BECAME KNOWN -- ALWAYS LOST MONEY. WITH THE ARRIVAL OF SBC IN 1973, THE OPERATION WAS TURNED OVER TO THEM. SBC CONVERTED THE CUSTOMERS BACK TO IBM EQUIPMENT ON NEWLY ACQUIRED DEMAND DEPOSIT ACCOUNTING SOFTWARE. SIX YEARS LATER, L.A. BANKING STILL WAS A LOSER.

INTEGRATED FINANCIAL SERVICES OFFERING I REFERENCED. BY THE WAY, IN 1982, FINANCIAL SERVICES IN TOTAL WILL BRING OVER $30M IN PRE-TAX PROFIT TO DATA SERVICES.

IV. CONCLUSION

TIME DOESN'T PERMIT ME TO DWELL ANY LONGER ON THE SPECIFICS OF BUDGETED TECHNICAL EFFORT. BUT THERE IS A FINAL ASPECT OF ALL THIS THAT NEEDS TO BE DISCUSSED. AS YOU KNOW, WITHOUT MY SAYING SO, THERE ARE MANY NEEDS FOR TECHNICAL EXPENDITURE WHICH DID NOT MAKE THE CUT WHEN WE GOT DOWN TO AN ACCEPTABLE 1982 BUDGET. AND AS YOU CAN TELL FROM THE BUDGETED PROFIT, WE PRESSED VERY HARD TO INCLUDE AS MUCH AS WE COULD.

THE PRESSURE IS GREATEST ON THE NEW DEVELOPING BUSINESSES -- ALTHOUGH WE WORK HARD TO PROTECT THEM. BUT AS OPPOSED TO THE LARGER, MORE MATURE BUSINESSES, THERE IS JUST NO PLACE FOR THEM TO HIDE. A SYSTEMS OR A DATA SERVICES OR A PERIPHERALS BUSINESS HAS SUCH A MASSIVE EXPENSE BASE THAT THEY CAN, IN THE SHORT RUN AT LEAST, ALWAYS FIND ANOTHER MILLION OR TWO FOR AN URGENT TECHNICAL NEED -- I MENTIONED EARLIER THAT PERIPHERALS IN 1981 WAS ABLE TO COME UP WITH EIGHT MILLION EXTRA IN TECHNICAL EFFORT AND STILL MEET BUDGETED PROFIT EVEN THOUGH REVENUES WERE DOWN.
FLEDGLING OPERATIONS JUST DON'T HAVE THAT POSSIBILITY. IN THIS REGARD, THERE WERE A FEW PROJECTS TO FURTHER DEVELOP OUR STRATEGIC DATA BASES AND ADDITIONAL COURSEWARE WHICH DID NOT MAKE THE 1982 BUDGET CUT. BUT WE DECIDED THEY COULD BE PRE-FUNDED VIA DEVELOPMENT GRANTS IN 1981, AND WE HAVE MADE PLANS TO DO SO. THE PROJECTS ARE SHOWN ON THE NEXT CHART. IN TOTAL, THEY WILL COST $1.5 MILLION. AFTER TAX, THAT'S $900 THOUSAND OR 2.4 CENTS PER SHARE.


WE THINK ITS WORTH THE TWO CENTS TO DO THESE GRANTS BUT I WOULD LIKE YOUR CONCURRENCE. DISCUSSION?