I. INTRODUCTION

Thank you, Trevor.

I'm delighted to be back in Australia, and to be able to join you on a very special occasion -- the 25th anniversary of Control Data Australia.

All of us can probably cite a place or time that has a special place in our heart.

Winston Churchill -- in his book, "The Gathering Storm" -- fondly recalled the years 1931-35 when he lived mainly at Chartwell, just outside London. Churchill wrote: "I built with my own hands a large part of two cottages and extensive kitchen-garden walls and made all kinds of rockeries and waterworks, and a large swimming pool, which was filtered to limpidity and could be heated to supplement our fickle sunshine. Thus, I never had a dull or idle moment from morning to midnight..."

When I look back at the time I spent here in Australia, helping Trevor build Control Data Australia, I can also say: "I never had a dull or idle moment from morning to midnight."
Like Chartwell to Churchill, Australia will always be very special to me. Those were exciting times that I'll never forget.

One vivid memory I have is a trip I made here during the Christmas holidays. Control Data had just been awarded a contract for one 3600 and six 3200's to the Australian Bureau of Census and Statistics, and one 3600 and three 3200's to CSIRO -- the largest government order ever and a significant one for Control Data. Everybody was excited. And, we were anxious to crack the university market -- particularly the University of Melbourne.

Trevor and I discussed making a sales call on the University while I was in Melbourne. "It's the holiday season and the heart of summer," Trevor told me. "Everybody is at the beach."

So, we decided that immediately after the holidays, Trevor would visit the University of Melbourne by himself.

But -- as the old saying goes -- the best made plans sometimes go awry. Before Trevor could make his sales call, the University announced that it was buying an IBM computer. It turned out that the IBM salesman had rented a beach cottage next to the president of the University. They had worked out a deal over the holidays.
Well, I'm a little early for the Christmas holidays. But I've told Trevor that if he has any hot prospects, I'm willing to stay in Australia for the holidays, rent a beach cottage, and close the sale.

II. LEGACY OF THE PAST
On occasions such as this, it is customary to recite a chronological catechism of dates and events that mark passage through time of the corporate ship of state. I think, however, I'll resist the temptation. Anyway, all it actually accomplishes is to remind us that we are older -- for some of us, older than we care to admit.

Instead, I thought it would be instructive to reflect back on the computer industry -- thanks to which we have known adventure equal to any in the chronicles of history.

It's not unusual for people to ascribe human characteristics to inanimate objects. Especially those which are the tools of their trade.

Somehow, however, the computer industry seems peculiarly dominated by this anthropomorphic mindset. Consider the word "memory." One can only marvel at the wistful -- perhaps even wishful -- thinking that christened a device for recording the presence or absence of an electromagnetic charge as a memory.

The epitome of all these technological malapropisms is the use of the word "generation" to describe this year's computer model.
Actually, to say "this year's" model is not quite accurate. The computer industry has not yet reached the cosmetic efficiency of the automobile industry. It has only been able to turn out new models every few years or so.

Anyway, according to the conventional view we are about to enjoy the benefits of the fifth generation of computers. The supposed generations of computers, to recapitulate, are: the first, based on vacuum tube technology; the second, on discrete solid state technology; the third, on the integrated circuit; and the fourth, on Large Scale Integration. The fifth is a mixed bag of advanced circuitry, new design structures and new software embodying so-called "artificial intelligence". All that is obviously a technologist's view of the world.

A societal view would be quite different -- and much more realistic. It would define a "generation" of computers more by their role in society than by the technology of their innards. As we shall see, not surprisingly, the time span of such a computer generation is roughly 20 years -- about the same as that of a human generation.

In fact, the arrival of computers in society in the late 1940s can be viewed as another wave of immigrants analogous to those human waves that arrived in America from Europe in the 1870s through the early part of the 20th century, or the wave of immigrants that has come to Australia in the past forty years. The process of assimilating those human immigrants into society parallels very closely the process by which computers are being integrated into our daily lives.
THE FIRST GENERATION

Similar to the great waves of human migration, the computer "immigrants" were preceded by early "explorers" -- the calculating devices of ancient history, the inventions of Charles Babbage in the 19th Century, the pathfinding of Alan Turing in the 1930's, and so on. But the first true wave of immigration, as so often happened with its human counterpart, came in the wake of great social upheaval. In this instance, World War II. It produced not only a tide of human immigrants to Australia, but the computer immigrants into the society of man.

Out of the turmoil of that conflict, there arose a restlessness. First in a trickle and then in large numbers, the computer immigrants came seeking change and opportunity. The typical computer immigrant arrived on the shores of society just as did its human counterpart -- a thing of basic skills, little sophistication, and with a tremendous language barrier between it and the place where it took up residence.

Society, on the other hand, was busy with other matters and mostly ignored the newcomer. There was some concern at times as it proliferated. But, in general, the new immigrant was tolerated as it went about its cumbersome, sweatshop kind of work solving equations for physicists and stamping out payrolls. Unable to communicate, it stayed tightly cloistered in ethnic neighborhoods -- called computer rooms.
Teaching this immigrant new skills was a slow and arduous task. By and large, it was so busy earning its keep that only in off hours -- after sometimes working 140-hour weeks, pausing only for brief health checks -- was there time to improve its basic skills. Pidgin English dialects came into use. Although most were quite arcane and had strange names and sounds such as FORTRAN, COBOL and ALGOL, some degree of communication began to take place. There was obviously still a lot of sign language required.

Over a period of 25 years following World War II, this tide of immigration grew. It attracted new and more powerful fellow immigrants, all of them sensing opportunity and seeking to make their mark. Many were quickly snuffed out in the accident-prone world of industry. Some survived and prospered.

All-in-all, these new immigrants were a rough-hewn crew stumbling through society. But like their human counterparts, they increased the wealth of their industrial masters, and of the whole economy. They were a new and vital source of energy and productivity. But the computers were also an alien lot -- unintegrated and certainly incapable of serving any broad spectrum of economic need. These computer immigrants were, in short, the cheap manual laborers of the new information age.
THE SECOND GENERATION

By the late 1960s and early 1970s, the offspring of the first generation began to make their presence felt. Building on the economic and intellectual foundation of their forebears, this second generation has escaped the sweatshops of numerical calculus and clerical processes. Its members have won a more secure place in society by applying a dazzling array of capabilities.

The more mobile of the new generation have moved out of the computer room ghetto and learned how to perform services in the general worksites of society. They work side-by-side with engineers. They are entering small businesses. They perform routine chores for air travelers. A few have even made it into the profession of teaching. Slowly, then, the offspring of the immigrants have made their way into society.

But as a whole, the second generation is somewhat torn -- eager to explore the new opportunities now open to it, yet still clinging to the old ways of the first generation.

Language continues to be a problem. While some can converse in the language of their adopted environment, most are more comfortable with their native tongue. Some computers and their programmer friends still hanker for the ethnic cabals of old and decry the defection from the old ways. And, if you'll grant me just a bit more poetic license, members of the first generation just shake their disk heads in bewilderment over the doings of their offspring.
No one observing the introduction of word processing into the clerical function of an organization — much less the feeble attempts of executive management to use this tool — could conceivably use a term like "fourth generation" — much less fifth — to describe the current state of affairs.

Still, the second generation is nearing the end of its time, and by the 1990s, the third generation will be fully with us.

THE THIRD GENERATION

This third generation will be better educated and more affluent than its predecessors, based on a spectrum of technology its "grandparents" couldn't imagine. It will be literate and articulate and completely integrated with its human partners. It will be capable of taking its place in every arena of human endeavor — not only accepted but sought after.

The point of all this is obvious.

If the metaphor of generations is to be used at all, it should define the way people use computers. Based on this view, the dividing line between the generations is roughly 20 years, not five years. Those are the generations of mankind. And the introduction of computers is faithfully following that generational pattern.
III. A VIEW OF THE FUTURE

What does all this mean to Control Data? To pursue the immigration analogy just a bit, as a company we have been the source of the brawniest of the computer immigrants. We intend to continue to do that. But how do we fit in the world of the third generation?

I have said that the metaphor of generations is only valid one from the perspective of how computers are used. And "how computers are used" -- the application of computers to challenging, complex tasks -- is the driving force, the determining factor, of Control Data's strategy and our future.

In that context, the ETA-10 is much more than a big computer, it is rather more correctly conceived strategically as an application system for solving the equations of fluid flow -- as an application system for meteorologists, for example.

We are going to build a future Control Data built on this concept. At present the core of that strategy revolves around six businesses which specialize in certain applications. In addition to ETA, there is the Energy Management Division, Military Systems, Marketing Information Services, Financial Information Services, and Cyber Systems whose specialty will be information management in the so-called heterogeneous computing environment. You probably recognize the last as the more familiar Transparent Computing Environment strategy.
Today these businesses are in the range of 100 to 400 million dollars each. (In the case of Cyber Systems, of course, I'm referring only to the TCE application). But they are the core of our future. Within five years, they will grow to be one-half to one billion dollars each.

In each instance these applications revolve around the acquisition, analysis, display and distribution of data. So if you want to think of it this way what I'm about is to put meaning in the name Control Data.

IV. WHY WE WILL SUCCEED

That opportunity before you dwarfs anything that has gone before.

We have great strengths in the products and services we have fashioned. To illustrate that let me just point out an indication.

[Australia Met Bureau story]

But more than any technology or product or marketing skill, we have a more important asset.

No matter where I travel in the world -- and certainly here in Australia -- I am continually impressed by the enormous goodwill Control Data has built over the years. People want us to succeed.

That is a tribute to the performance of many people. But mostly, it is a tribute to integrity. Control Data has dealt with its customers, communities and employees with integrity. Integrity more than ethics, honesty, care. The word implies wholeness. We have cared about their well being and their success. People sense those things. And, by the
way, it is that characteristic that is at the root of both superior Quality and superior Marketing. It is at the root of successful selling. Control Data Australia was founded on the faith and integrity of one person -- Trevor Robinson. We all have a great responsibility to live up to his example.

We've known good times, bad times, losses, wins, and yes, stagnation as well as growth. Many other companies have come and gone over these past twenty-five years. Control Data is still here not just because we have skill and the will to succeed, but because we have cared to do the right thing.

You are a vital part of the Control Data of the future. As we move from the second to the third generation, you are in the right place at the right time. The legacy of our past has given us the opportunity to fashion a competitively advantaged company. If we care for our customers, treat them with integrity, we'll achieve great success -- and equally important -- a lot of excitement and fun as well.