A HISTORIC PERSPECTIVE OF AT&T

HERITAGE, CHANGE AND RENEWAL

Mar. 10th 1876

Mr. Watson — Come here — I want you

How do you do

~~God~~ Tune God Save the Queen

and several other articulate sounds

If a string produces a musical note

A company is many things. It is the customer served, the public benefited and the vehicle of profit for its owners. It is also an accounting of assets and liabilities; an assembly of products and services. But, at heart, it is people. And it is people — the people who share the AT&T heritage — whom we celebrate in the following pages.

AT&T as we know it is coming to an end. But it is yielding to a future more exciting and inspiring than any frontier we've conquered in the past. We won't start anew. We are building on the legacy of those who came before us: people who built a great company over 100 years, and those who built another in fewer than 12.

It is a legacy of phones built to last 50 years and unequaled phone service in times of calm and calamity. But it is also a heritage based on the importance of people, the ideal of integrity and the very simple idea that communication is the beginning of understanding.

It is a heritage told in tales and seen in symbols. It begins with the telephone; a mere device seemingly imbued with magic, it has been variously described as the "shining plastic cousin of a shoe" and a channel of words that "is, absolutely and exactly, the meaning of freedom."

AT&T ... turned nations into neighborhoods and continents into communities.

With this device, the people of AT&T and the telephone industry let America talk to itself — and then turned nations into neighborhoods and continents into communities. The electronic pony express of microwave was joined by cables roaming the oceans' floors, signals ping-ponging from space and back, pulses of light hitching rides on gossamer strands of glass. And now we're melding mind with machine, equipping information with the skill to be heard, seen or computed anytime, anywhere.

Technology is the tangible result of what we've built, but it doesn't stand alone. The wonder of our heritage resides in the human spirit that prodded, cajoled and conformed technology to the public interest. It is the spirit that prompted Alexander Graham Bell to convert word of mouth to a message in the ear. Given, as Bell Labs' John Pierce said, that "Nature abhors a vacuum tube," it also fueled the discovery of

the transistor. It was evident, too, when Arno Penzias and Robert Wilson heard things go bump in the night and turned the echoes of radiation into palpable proof of the Big Bang Theory of the creation of the universe.

But the human spirit isn't found only in the cosmos or technology's hip pocket. It's portrayed in lineman Angus MacDonald's blizzard watch on the Boston-to-New York trunk line in 1888 and in the contingent of female operators — the "Soldiers of the Switchboard" — whose call to serve took them to France during World War I. It lives in the crews who cut a swath across a continent to build a network of invisible waves. And it's anchored in the countless efforts — large and small — of people who give to the kids, the arts and the communities where we live and work.

Several months ago, someone at AT&T unearthed a weathered spiral notebook. It contained a collection of penciled lines and typewritten addenda, meticulously recording telephone terms of the '60s and '70s. There was "interconnection," the hobgoblins known as "harms to the network," and the acronyms for which we're unfortunately also known. It also defined the network.

The network, it said, "is as tangible as the steel of a microwave tower, yet as ethereal as an electronic pulse. It is a long-distance telephone call, a ream of information from a computer, a televised football game. It is seldom considered by those who use it. But to those who build and operate it, the network is a national asset of immense proportions, a resource that is at once both awesomely powerful and intricately delicate."

The future we are about to build as three separate companies also can be thought of as both powerful and delicate. It is far more complex than the network of yesterday; and it is more fundamentally complicated than a cross-country call, the travels of zeroes and ones, a football score beamed by television.

Yet, in creating the future, we bring the same sense of awe, the same respect that acknowledges that more than a business, we are building a bridge that will connect people, information and technology in fundamentally new ways. We anticipate that the pride of performance and commitment to the common good will be as finely drawn in our faces as it is in the portraits on the pages that follow. Finally, as we set out in new directions, we understand, as General Traffic Manager J.R.L. Van Meter did in 1922, that although a business is many things, at heart it is "just ourselves, you and I and all of us, working side by side." That is our heritage, our mooring in the sea change ahead, and our foundation for renewal.

Fall 1996

HERITAGE

"The AT&T *name* is worth a lot; the AT&T *spirit* is worth much more."

— Bob Allen

On June 25, 1876, at the Centennial Exposition in Philadelphia, Alexander Graham Bell — a little-known teacher of the deaf — was demonstrating his amazing new invention for Emperor Dom Pedro II of Brazil and other dignitaries.

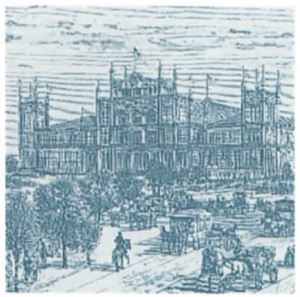
"My God," exclaimed the monarch. "It talks."

Had Dom Pedro been able to look into the future, he surely would have been even more astonished. This new invention, this fascinating novelty called a "telephone," marked the beginning of a communications revolution, a revolution that continues with more intensity than ever today.

Bell's invention also laid the foundation for a new company, a company that would become an American institution and the leader of the communications revolution, first in the United States and then on the global stage.

That company, of course, was AT&T.

Like the communications revolution itself, the story of AT&T is ever-changing. Now, in the Fall of 1996, 120 years after that warm summer's day in Philadelphia, we're completing the biggest change in our long and proud history.



We've entered the conclusive stage of the restructuring announced in September 1995. We're creating three new companies, including a "new" AT&T, Lucent Technologies and NCR.

At the conclusion of this commemorative magazine, you'll hear from the leaders of all three new businesses about the separate future paths chosen by each of the three companies. Meanwhile, the pages in between take a nostalgic and prideful

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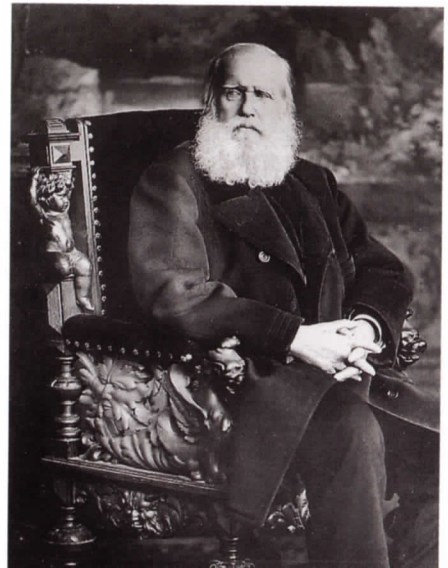


The telephone instrument that carried the first human voice (center), and the later Philadelphia Exposition model (far right), form the centerpiece of the early years. Bell made the inaugural call on the New York-Chicago line in 1892 (right).

The coming age of telephony would end the isolation of small-town America (bottom left), thanks in part to the efforts of horsedrawn wagons of telephone "work gangs" (bottom center).

look back on the history of AT&T that we all share.

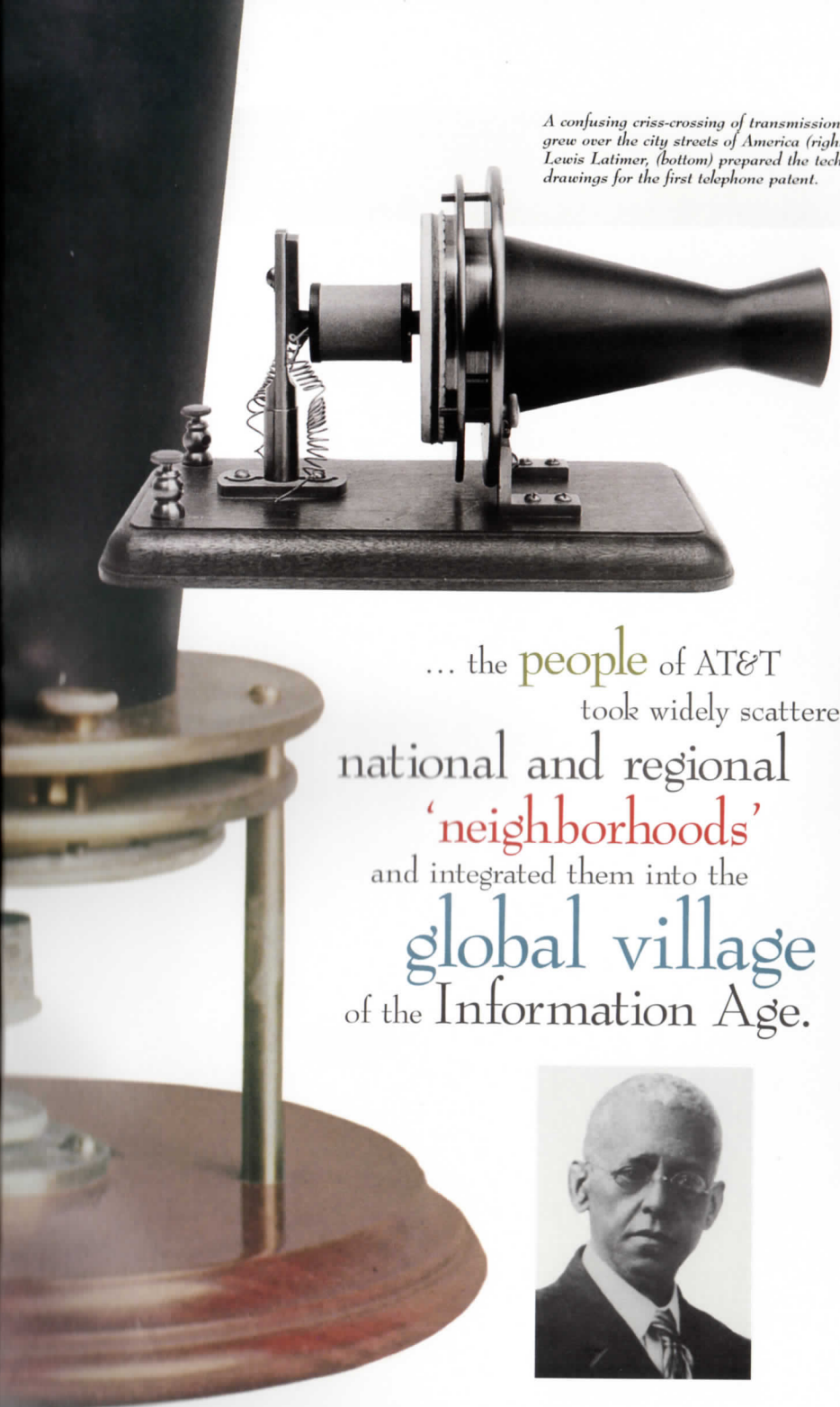
It's a personal history that reflects the best efforts of generations of AT&T people — people whose unwavering service ethic has long set the standard for helping customers. And it's a corporate history that's inseparable from the history of the country where AT&T was born.

This company went through its adolescence in what was called the "Progressive Era" in American politics and social policy. It went on to serve Americans through two World Wars and the Great Depression. And as the 20th century marched on, AT&T provided the communications technology that enabled so much of the business growth that has made America the world's biggest economy.

AT&T truly grew up with America. Like America, it had an influence on the whole world — from the first telephone wires and simple telephone sets to dial tone, worldwide calling, and voice and data communications through the far reaches of space.

... AT&T truly grew up with America ... from the first telephone wires and simple telephone sets to dial tone, worldwide calling, and voice and data communications ...

A confusing criss-crossing of transmission lines grew over the city streets of America (right). Lewis Latimer, (bottom) prepared the technical drawings for the first telephone patent.



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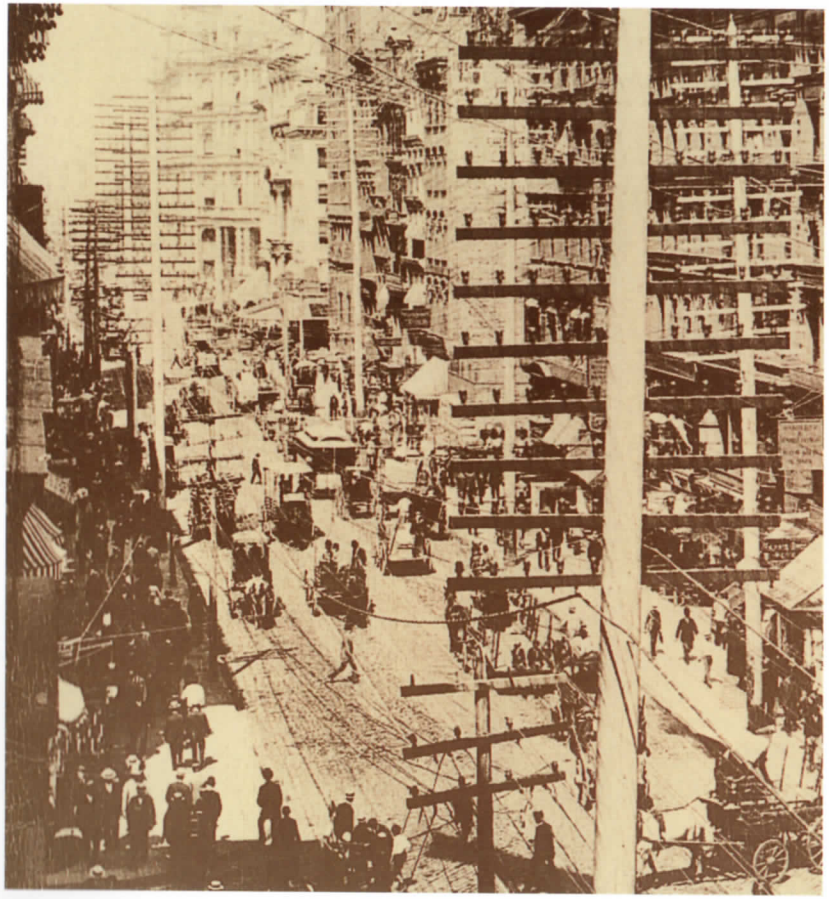


AT&T people tied the big cities, small towns and family farms of America together with universal telephone service. As Bell Labs technology widened the scope of what they could do, the people of AT&T took widely scattered national and regional "neighborhoods" and integrated them into the global village of the Information Age.

Here are the historical highlights of AT&T's contributions to the nation. It's a record of pride in accomplishments that can be carried over into the three new companies. Each of us can take deep satisfaction in where we've been, even as we look with great anticipation towards where we are going.


HELLO CENTRAL!
I WANT MY MAMA
A.T.&T.Co.
LOCAL
LONG
DISTANCE
TELEPHONE
BELL SYSTEM
AND ASSOCIATED COMPANIES

Telecommunications played a particularly significant role in the transformation of America ...

The Early Years

From that faraway June day in 1876 to the beginning of World War I, the telephone, the system it spawned, and the world grew rapidly together. Telecommunications played a particularly significant role in the transformation of America from a rural, agricultural nation to an urban, industrial world leader.

The telephone system relieved the farmer's isolation, connected homes and offices, and sped business across the entire continent. And of course, in the great cities being built, the telephone was an integral part of the high-rise office buildings that were springing up in great numbers.

Growth and contributions to the development of telecommunications were quickly becoming worldwide, too. But, by 1899, it was clear that the United States had surpassed all nations in the development of the telephone system — an accomplishment that remains difficult to challenge even today.

These developments in telecommunications in the U.S. came at a remarkably rapid pace at the end of the century, mirroring the quickening pace of American life.

The list of achievements was staggering.

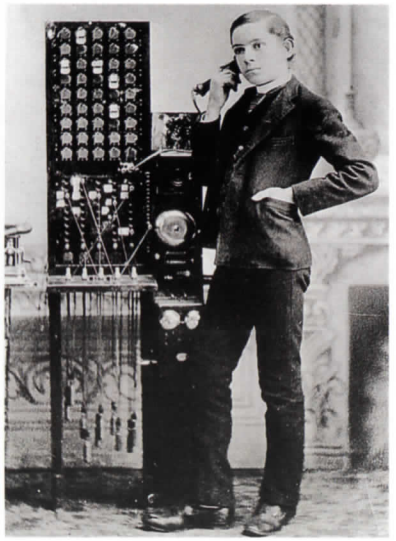
Only two months after the historic demonstration of the telephone in Philadelphia, the world's first long-distance call — albeit one-way — was made on Aug. 10, 1876. Bell's father and uncle spoke from Brantford, Ontario, and the younger Bell received the transmission in Paris, Ontario. The call was carried over a telegraph line that was eight miles long.

The Canadian experiment was followed in October by history's first two-way long-distance telephone conversation over an outdoor wire. Bell and Thomas Watson, his assistant who played an

Both men and women worked the early switchboards together (below). A short time later the men were "out" and the women were "in." The situation wouldn't change for another 60 years.

J.R. Haley (below right), manager and operator of the first exchange in Marietta, Ga. Special telephone needed for long-distance calls in 1886 (left).

Western Electric, in various stages, was an early part of the Bell System. Its embryo was the Gray & Barton Co. in Chicago where workers gathered for a photo in 1871 (right). Western Electric represented an early AT&T global presence (inset at right) in Antwerp, Belgium.



integral role in the invention and development of the telephone, talked to each other between Cambridge and Boston, Mass., a distance of two miles.

In the waning years of the 19th century, these historic calls were followed by such milestones as the first telephone exchanges; the opening of long-distance lines between major cities; early attended, and later, coin pay stations; telephone numbers and directories; handsets and multiple switchboards

that connected lines and gave operators the ability to handle incoming and outgoing calls for subscribers; experiments in underground cable conduits to replace the proliferation of ungainly and ugly overhead wires and poles; and the introduction of two- and four-party line telephone service.

At a time when the public was becoming wary of industries run by monopolies and huge business "trusts," the embryonic AT&T arrived on the scene. The public would find, though, that AT&T was to be an enterprise whose organization and policies were to be as revolutionary as the technology that was its foundation.

Theodore N. Vail was the organizing genius credited with inventing the Bell System and the vision that carried the system for its first hundred years — universal service, a phone for everyone and connected with everyone else.

He also welcomed operating as a public franchise answerable to the government and the people. In an age of under-the-boardroom-table deals, he demanded full public accounting of operations and finance to subscribers and shareowners.

Most important, Vail stressed service over profit. It was a radical concept some found hard to understand and others found harder to believe.

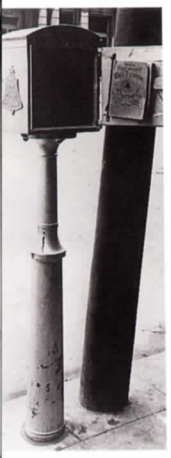
The company operated under no fewer than a half-dozen names in its early years.

A subsidiary called American Telephone & Telegraph was formed in 1885 for the expressed purpose of "building long lines connecting city exchanges and operating lines by cable and other appropriate means with the rest of the known world." It became the parent company of the Bell System in 1899.

In the early days of the business, the Bell Companies found themselves in a series of court battles, constantly defending their rights to the invention and to the original patent.

Emma Nutt (below), the Bell System's first female telephone operator. The telephone call box (bottom left) — the pay phone of its day — became an increasingly familiar sight in the early 1900s.

When Bell's second patent expired in 1894, it opened the door for anyone to make telephones and sell telephone service.



A number of independent companies sprang up, and in many cities it was necessary to subscribe to the services of several companies in order to talk to everyone in town.

Vail dealt with competition, in part, by allowing independent companies to join the system on equitable terms, or by buying them out. His policy, which set the course for the company, was consolidation,

The infamous "Blizzard of '88" inspired "The Spirit of Service," a painting depicting Bell System lineman Angus A. MacDonald checking lines during the storm (inset, opposite page); it remains AT&T's symbol of service.

Along with the distinctive Bell symbol, another familiar sight was the "complete installer" cycling around the streets of America (below left). Bell Telephone Company branch offices "plugged in" just about everywhere (below).

Decorative phones from the 1890s (right) were manufactured in Western Electric plants such as the headquarters on Clinton Street in Chicago (opposite page).

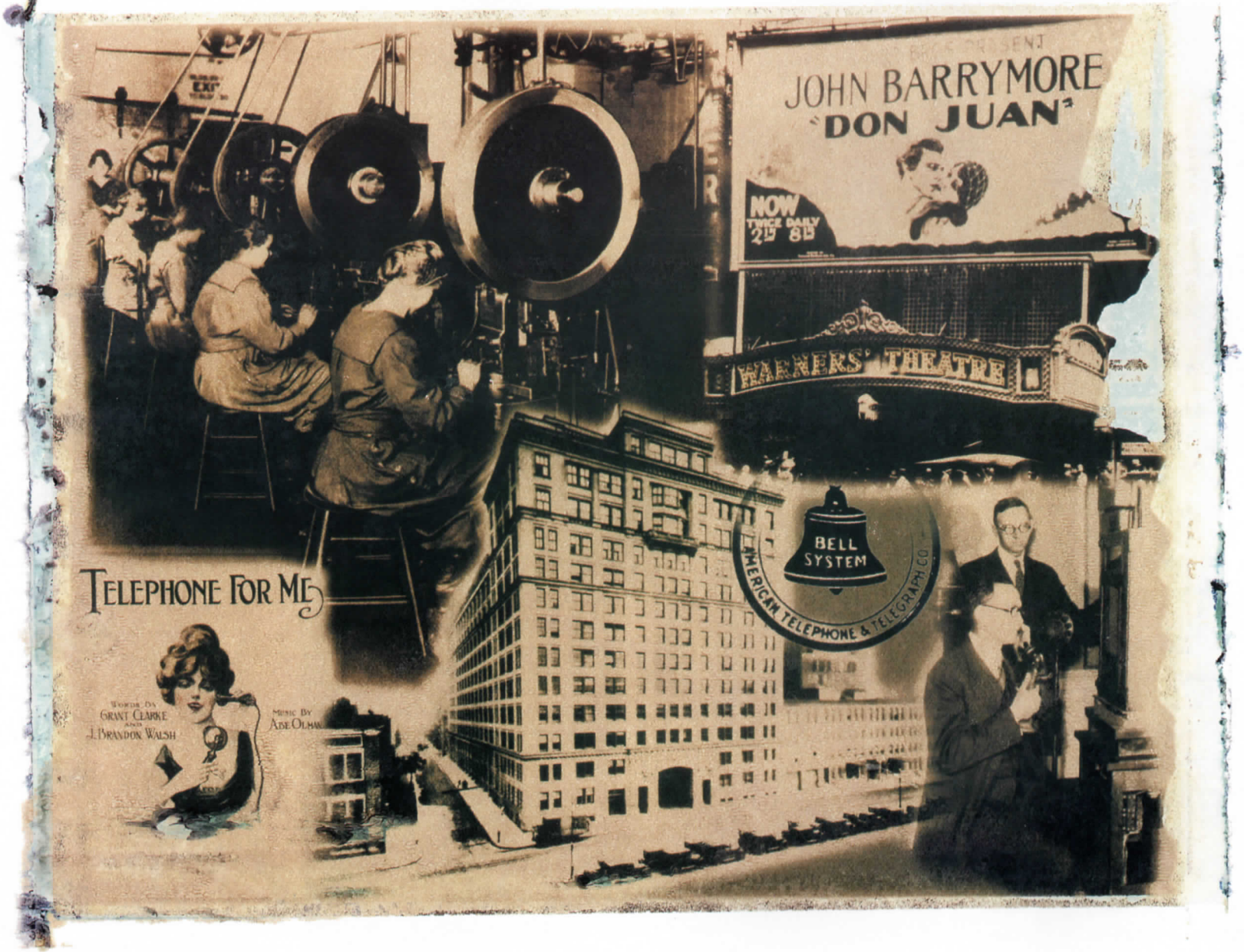
centralization, and standardization. The system was structured on three pillars that provided the company's organizing principle for the next century: Long-distance service was handled by the parent company through its Long Distance Lines Department, local service by the operating companies, and manufacturing and research by the Western Electric Company. AT&T bound all the entities together and looked after relations between the companies and the units.

The plan worked. Telephone service slowly but surely became firmly established — not as a curiosity, or a luxury, but as a growing necessity — first in business and then in the home.

In purely human terms, the success of the effort sounded the death knell of isolation in this world forever, and this revolutionary method of instant communication entered every area of our lives.

"Hello, Central" became a byword for connecting a call through an operator. In the early days the operators were boys and men, an extension of the traditional male role as operator in the telegraph industry. Often their regular greeting to callers was "hoy! hoy!" — a particular favorite of Bell's that later turned in to the more familiar hail of the sea, "ahoy! ahoy!" But the boys were reputed to be rude and they were blamed for playing tricks on subscribers.

Soon they were replaced by women who gained the reputation in the telephone industry for being more patient, polite and having a greater degree of dexterity. And so "the voice with the smile" became an integral part of America's telephone lexicon. It was more than 60 years before another generation of male operators came out of exile and once again shared the switchboard with their female colleagues.


JOHN BARRYMORE
"DON JUAN"
NOW
TWICE DAILY
2.5 8.5
WARNERS' THEATRE
BELL SYSTEM
AMERICAN TELEPHONE & TELEGRAPH CO
TELEPHONE FOR ME
WORDS BY
GRANT CLARKE
AND
J. BRANDON WALSH
MUSIC BY
ABE OLMAN

For AT&T, the era was one of remarkable achievement.

War, Boom and Bust: The Middle Years

For AT&T, the early decades of the 20th century were years of remarkable achievement.

Radiotelephone and ground-to-air transmission were introduced. And the first private-line teletypewriter service contract was signed with a news agency, United Press.

In 1917, the name of the Long Distance Lines Department of AT&T was shortened to Long Lines.

Among the troops sailing to France were the first two of 12 battalions of Bell System Signal Corps soldiers. They were soon followed by AT&T radiotelephone equipment designed for antisubmarine warfare. The equipment was to be tested under combat conditions.

America emerged from World War I as a global power and an acknowledged industrial leader of the world. After the Armistice, public appreciation for the critical importance of telecommunications sharpened, stirring demand for new services and technologies. The company responded in kind. One historic response was the formation, in 1925, of Bell Telephone Laboratories as the research arm of AT&T. It would eventually become known to the world as Bell Labs.

Perhaps the most notable achievement during the 1920s was the inauguration of overseas telephone service between Europe and all Bell-connecting telephones in the U.S., Canada and Cuba.

At this time, too, the silent movie and its idols — Valentino, Clara Bow, Charlie Chaplin, Douglas Fairbanks — had created a new and magic world for the public. By the end of the decade, the pioneering efforts of Western Electric and Bell Labs had added an even more wonderful dimension to the motion picture — sound.

"The Weavers of Speech," (below) which first appeared in a Bell System national magazine advertisement in 1915.

A crew at work constructing the first transcontinental phone line in 1914 (below right). Linemen working on poles were soon as familiar a sight as policemen, the local banker and the iceman (center).

The movies now had a voice.

AT&T also broke ground in another mass communications medium with WEAF, the first radio station to broadcast a paid commercial. Early broadcasts came from primitive studios in the Long Lines building on Sixth Avenue in New York City. Many of the "stars" were AT&T employees who voluntarily went "on the air" during lunch hours to play music or sing. A company engineer, Graham McNamee, was so enamored of the new medium that he left the company for a radio job and went on to be "the voice of sports" for the decade, as widely recognized then as any national sportscaster today.

Later, AT&T made a strategic decision to concentrate its energies on telecommunications and got out of the broadcasting business — but not the technology of broadcasting. It would be a while before television burst upon our world, but when it did, AT&T was high on the list of pioneers of the revolutionary communications tool.

Sound movies, radio and subsequently TV were made possible by development of the high-vacuum tube amplifier — also the enabling technology behind the first transcontinental telephone line. But among the immediate results of the historic breakthrough of the amplifier was something that today we take for granted: the loudspeaker, which gave birth to the first public-address systems.

Primitive mobile phones (bottom right) and speaker sound systems (opposite page) were early technological innovations. Electrical sound recordings (right) and the candlestick-type telephone (far right) were also marks of the early years.

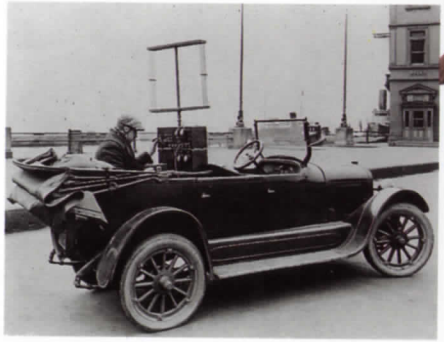
By Armistice Day 1921, AT&T was able to send President Warren G. Harding's speech at the Tomb of the Unknown Soldier in Arlington National Cemetery by telephone lines to New York City and San Francisco, where public-address systems carried his voice as clearly as at the graveside.

The age of "the golden-tongued orator" was dead. A worldwide audience now could hear speakers from far beyond the back row.

During the '20s, automatic switches and dial telephones also spread rapidly throughout the Bell System. Telephone use grew so swiftly that the number of operators increased, even though they were not required for every local call.

AT&T was very much a part of the trend to make home life and work life happier, healthier and more productive. From 1924 until 1933, Western Electric's Hawthorne plant in Chicago was the site of a series of experiments conducted under the auspices of the National Research Council and Harvard University. The studies tested isolated work groups under changing work conditions such as lighting, increased levels of supervision, number and duration of rest periods, the length of the workday and amounts of food eaten.

Their production, health and reactions to the



Early experiments included air-to-ground communications (right), Long Lines employees broadcasting over radio station WEAF in New York City (below right) and television demonstrations by Bell Telephone Laboratories (below).

Meanwhile, "the voice with the smile" was being heard in other parts of the world (opposite page). Desk sets from the 1920s such as this one (below) were the first from AT&T to feature a combined handset. They reflected a European design, and were nicknamed "French phones."

changes were measured. The general conclusion: Attention to employees, not work conditions per se, is the dominant impact on productivity. The impact of the experiments — collectively known as the Hawthorne Studies — has been felt worldwide, and by many generations up to the present day.

Toward the end of the decade, in 1927, Harold S. Black was taking the Hoboken (N.J.) ferry across the Hudson River to his job at Bell Labs on West Street in Manhattan. He was intent on a problem. He filled a page of his New York Times with equations and diagrams. By the time he reached the ferry terminal he had worked out his conception for the negative-feedback amplifier. An epoch-making invention in electronics, the amplifier was adopted in every type of communication circuit. Its ability to amplify with greatly reduced distortion and noises was key to the clear transmission of long-distance and overseas communication that we now enjoy.


116
SHIP-TO-SHORE
ILE DE FRANCE WEST
CRUISE
EMPRESS SOUTH $9 THU
EUROPA SOUTH $9 FRI
COLUMBUS


The Voice
with
a Smile
BELL
SYSTEM
AMERICAN TELEPHONE & TELEGRAPH CO.
AND ASSOCIATED COMPANIES

Despite the turmoil, telephone technology continued to make strides.

Depression and World Conflict

Along with the rest of the country, AT&T was caught in the economic crunch of the Great Depression of the '30s. By the end of 1933, extra employees hired during the boom times were gone and the workforce dropped by 40 percent. A trimmed force of experienced employees was maintaining telephone service, and was trying hard to sell more service in a nation where the number of households with telephones decreased by a fourth.

There were layoffs, and much effort by the company to prevent further depletion through transfers, extra maintenance work and other measures. Many employees worked only part-time hours.

In the years 1932 through 1935, AT&T earnings also suffered seriously, but the company continued to pay its shareowners dividends at the same rate out of surplus earnings of the previous decade.

Despite the turmoil, telephone technology continued to make strides.

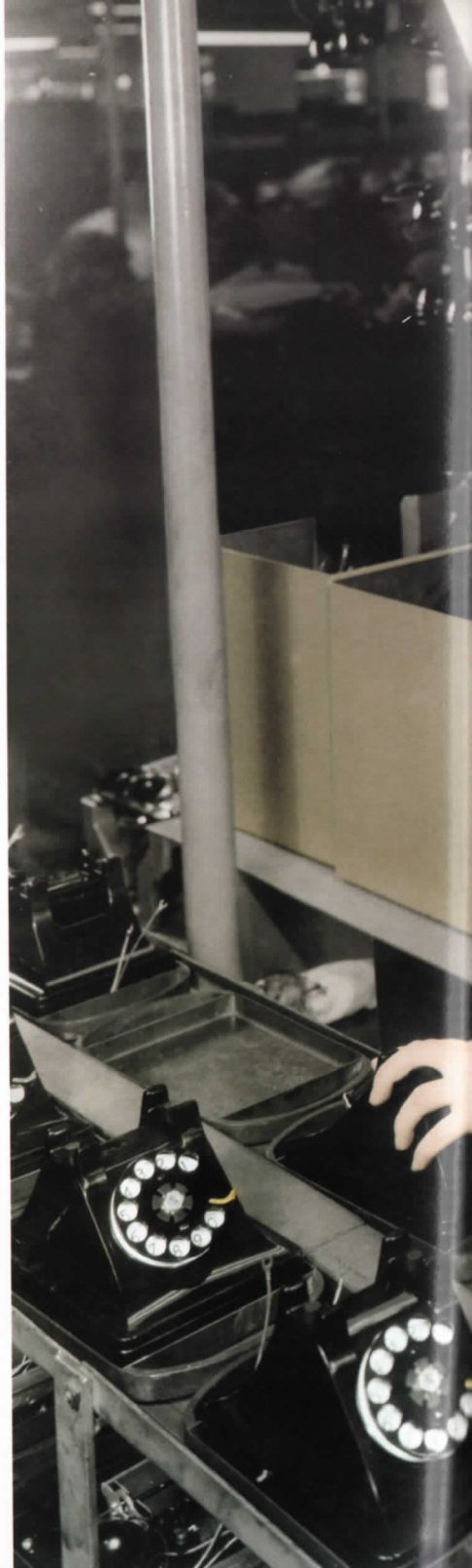
During the decade, long-distance and overseas service progressed to the point where, as a demonstration, Walter S. Gifford, president of AT&T, telephoned around the world to T. G. Miller Jr., vice president in charge of Long Lines, who was in another room in the same headquarters building in New York City. This first round-the-world telephone call traveled a 23,000-mile circuit of wire and radio channels — from one room to the other.

At this time, the first coaxial cable was installed between New York and Philadelphia, and a tremendous improvement in dial central offices came when the first crossbar switching was made

The Bell System helped bring the nation its first television programs (below left).

available. The 1930s also saw a completely self-enclosed AT&T desk telephone. A separate wall box was no longer needed. Everything, including wiring and bell, was now combined in the base of the instrument.

During World War II, telephone technology marched side-by-side with the troops. Bell Labs put aside its normal research in favor of war projects, as did Western Electric. They concentrated on such things as



When World War II began, many callers — including President Franklin D. Roosevelt (below right) — were probably speaking over the 1937 Model 302 desk set (opposite page). The phones were made in Western Electric facilities such as Chicago's Hawthorne Works (left).

building and improving radar and gun directors. In addition to devoting its facilities and personnel to military research, Bell Laboratories conducted the School of War Training, which prepared people for technical services in the armed forces. Many of those men in the Army Signal Corps assisted in such work as the construction of the telephone line from Calcutta, India, to Kunming, China, along the vital Stillwell Road.

Women filled previously all-male factory jobs at Western's plants, and Bell Labs hired its first female and African-American scientists.

Telephone calling boomed, but Western could not make enough new equipment to meet the demand. AT&T ran ads urging people not to make non-essential long-distance calls, and leave the circuits free for war effort business and the personal calls of our fighting forces. Many servicemen and servicewomen — reaching out

to distant families — made their very first long-distance calls during the war.

For measures taken to protect its telephone plant in World War II, AT&T received the National Security Award.

Despite global conflicts and conflagrations, technology — including telecommunications technology — continued to reshape the world into something unrecognizable from pre-World War II days.


WESTERN ELECTRIC
MAKER OF BELL TELEPHONES
STOP

In 1941, the neon sign on the Western Electric Hawthorne Works in Chicago (left) began advertising Western's best-known product for all to see. The foundry at the Hawthorne Works (inset) produced thousands of metal casings for telephones and other apparatus.

AT&T brought field telephones onto the front lines (below). Free of wartime restraints, AT&T moved speedily ahead with new model phones (right) and improvements to the nationwide network that carried — among other communications — television (below right).

Shortly after the war ended, there was a historic breakthrough — the discovery of an electronic "tool." It had all the revolutionary impact on modern society that the invention of the wheel and the other simple tools had in prehistory. It changed our lives forever.

In December 1947, three Bell Labs scientists — William Shockley, Walter Brattain and John Bardeen — succeeded in creating the transistor. The monumental scientific breakthrough ushered in the modern electronic era. Without the need of that bulky old standby, the vacuum tube, computers were eventually reduced from huge warehouse-sized floors to the palm of the hand. The ability to reduce complex electronic systems to manageable size opened the age of the computer industry, communications satellites and space exploration, and the electronic switching of telephone calls. The transistor introduced

When 195 Broadway was national headquarters for AT&T, with its tastefully decorated marble interior and its ornate chandeliers hanging high in the large public lobby (below left), it was known fondly to New Yorkers as "the telephone building."

mainframe computers for business along with such recognizable and usable items as the hand calculator, and the very portable radio of the plugged-in generation.

Shockley, Brattain and Bardeen were awarded the 1956 Nobel Prize for their work.

Picturephone service, touch-tone dialing and fiber optics, in their various stages of development and introduction, were among the never-ending improvements deriving from Bell's invention. In 1928, Arthur W. Page, AT&T's vice president of public relations, made a revolutionary proposal: Provide the public with a choice of various styles and colors of telephones. He noted that Western Electric made 142 different kinds of switchboard cable, but customers were only allowed to choose among "one black desk set, a hand set, a wall set, and one of those black-buttoned intercommunications systems."

In 1947 the Bell Labs team of Bardeen, Shockley and Brattain (left) made the historic breakthrough that gave the world the transistor, for which they were awarded the Nobel Prize (below).

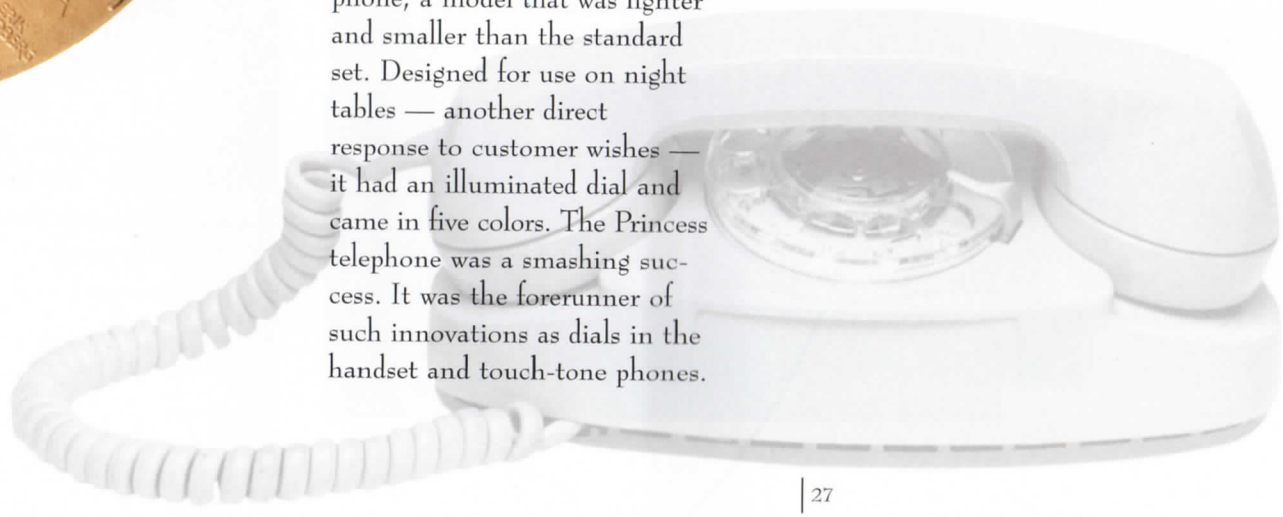
AT&T first introduced color telephones in the 1950s. The bedside Princess telephone (below), with its illuminated dial, is probably the best-remembered set in the turnover from the black-only telephone to a never-ending variety of colors and shapes.

Page's vision was not realized until the 1950s, when pent-up demand for telephones and service skyrocketed. By 1957, the number of telephones in the U.S. was three times its 1939 level, and more than 70 percent of American households had one. But it wasn't simply a mechanical device in the minds of consumers anymore. It was part of the household decor — like the furniture and the lamps. AT&T got the message.

Color telephones were mass-produced for the first time in 1954. They were quickly followed by the Princess telephone, a model that was lighter and smaller than the standard set. Designed for use on night tables — another direct response to customer wishes — it had an illuminated dial and came in five colors. The Princess telephone was a smashing success. It was the forerunner of such innovations as dials in the handset and touch-tone phones.

When the Russians launched a little sphere called Sputnik in an orbit around Earth, it was the dawn of the Space Age. AT&T pioneered in this new frontier with Telstar, the first international telecommunications satellite. Radio astronomy was born out of Bell Labs research, too.

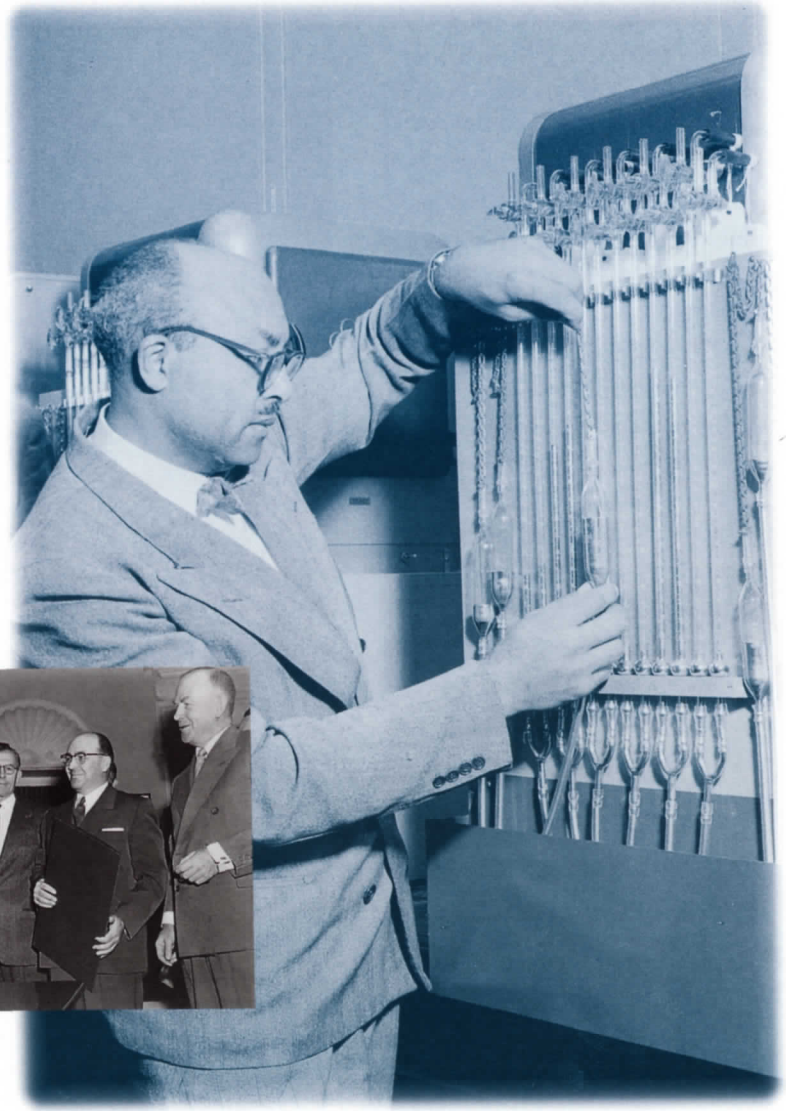
In an incredibly short span of time from the first beeps of Sputnik, President Richard Nixon spoke to two American astronauts on the surface of the moon. It was the



Bell Labs scientists such as Dr. W. Lincoln Hawkins (below), were researching, inventing and introducing basic and technical innovations at an unbelievable pace that continues today.

One landmark event as AT&T moved swiftly into the modern era took place in 1953. President Dwight D. Eisenhower made a call on the 50 millionth telephone produced by the Bell System (below left).

In the early 1960s, demonstrations of the Picturephone were given in various company locations and many Bell System people — including future CEO John de Butts — were involved in the introduction (below).



national telephone network — designed and built by AT&T — that carried the vital telemetry and human communication between Earth and space.

But AT&T actually had a much broader role in the triumph of the Apollo program. In response to a NASA request for AT&T to provide technical expertise for the effort, AT&T established a subsidiary — Bellcom — whose sole task was to provide systems engineering support to Project Apollo. The project had about a dozen prime contractors, but it was left to Bellcom to consider the whole picture and advise NASA about how the parts of the project would best fit together.

Meanwhile, other developments with wide-ranging implications had been pouring out of AT&T ... the solar cell, the modem and the laser.

Super-capacity coaxial cables, microwave systems and the new satellites now linked the nation in the complex communications network. And, starting in 1956, when Long Lines opened the first trans-Atlantic cable, overseas service grew from an expensive luxury into an economical necessity.

"Hello, Central" had given way to direct-distance dialing in domestic service. By the 1970s, customers were to begin dialing directly overseas, too.

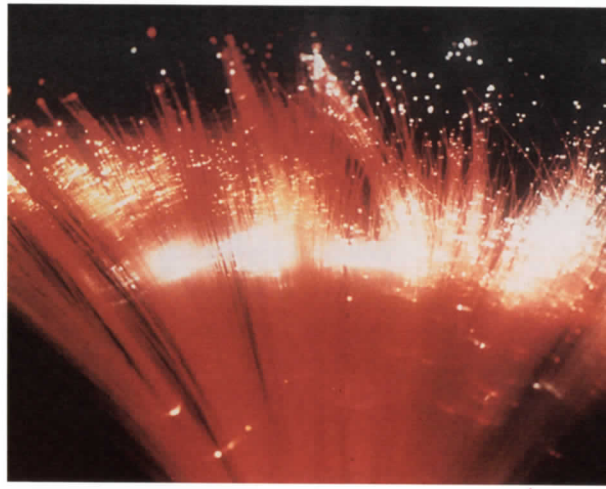
In the late 1960s and early 1970s, R&D work was under way on another significant advance — mobile telephone service that would allow people

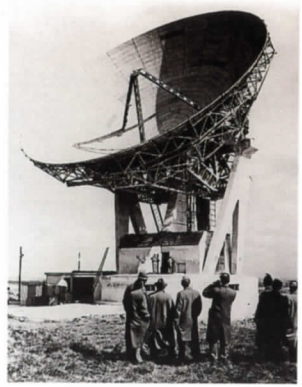
The dawn of the space age provided new opportunities for AT&T to display its expertise in communications technology. The first Telstar satellite was launched in 1962 (left), with signaling to and from the orbiting satellite occurring through large earth stations (below right).

President Nixon spoke to the Apollo astronauts while they stood on the moon, July 20, 1969 (bottom). Ever since fiber optics (below) emerged in the 1970s, AT&T has been a leader in incorporating the technology into advanced telecommunications capabilities.

to conveniently use the phone system from moving vehicles. A restricted service had been in place for years, but few calls could be handled at any one time and these were often frustratingly subject to interference and fading.

Responding to a Federal Communications Commission request to all carriers to find a viable system to meet public demand, Bell Labs made the first workable breakthrough, establishing mobile telephone





A contrast in AT&T milestones in the later decades of company history include the Touch-a-Matic telephone (right), the laser (below) and a decorator telephone booth in New York City's Chinatown (below left).

service as we know it today — the cellular system that moves calls from one transmitter to another and into the telephone network by electronic switching. Near the end of the decade, in 1977, another AT&T technology was given its first wide-scale, practical application for customers. A commercial fiber-optic communications system was installed in Chicago. The technology was a success and, from that modest beginning, messages increasingly began to be transmitted by pulses of light. Today, AT&T's Worldwide Intelligent Network is predominantly fiber-optic.


The New York Times
NEW YORK, SATURDAY, JANUARY 9, 1982
SETTLES PHONE SUIT, DROPS I.B.M.
T.&T. TO SPLIT UP, TRANSFORMING IN
U.S. Drops Rule On Tax Penalty For Racial Bias
By STUART TAYLOR Jr.
WASHINGTON, Jan. 8 — The Reagan Administration, reversing an 11-year-old Federal policy, announced today that it would no longer deny tax-exempt status to private schools, colleges and certain other nonprofit institutions that practice racial discrimination.
CHANGE
The path from divestiture to trivestiture and beyond.
William F. Baxter, Assistant Attorney General, above left, and Charles L. Brown, chairman of the American Telephone and Telegraph Company, at a Washington news conference on the settlement.
Thomas Barr, right, chief attorney for


AT&T

I am *confident* we have chosen the right course.

Breakup, Renewal, Reinvention

In an ironic twist, some of the Bell System's greatest technological achievements led to its breakup. By the 1970s, the transistor, microwave communications and other innovations that improved operating efficiencies in long-distance and special communications services had also made it economically feasible for other companies to develop competitive products and services. (Local service, at the time, still required such a concentration of resources that no one made significant appeals for competition there. But a number of companies wanted to sell long-distance service and telephones.)

Would-be competitors attacked the Bell System monopoly on several fronts – most effectively in the courts. The company had a two-pronged defense. First, it had done nothing illegal. Second, it pointed out, the United States had the best telephone system in the world. In fact, the company's slogan during this period was, "One Bell System, It Works."

In 1974 the U.S. Department of Justice filed an antitrust lawsuit to break up the Bell System monopoly. Almost eight years later, as the case still dragged on, it had become nearly impossible to plan for the business's future. So the company offered to settle the suit.

The company's proposal would allow AT&T to retain ownership of its competitive parts: Western Electric; AT&T Bell Laboratories; AT&T Long Lines; and the customer-premises-equipment business. In exchange, the company offered to divest the local

Opposite page: Images of the era of change surround Charles L. Brown, chairman at the time of the landmark Bell System divestiture.

"A Fond Farewell To Ma Bell"

— The Wall Street Journal, 1984

CEO Charles L. Brown, center, makes the historic divestiture announcement on Jan. 8, 1982 (below). Narendra Karmarkar, a Bell Labs mathematician who invented a revolutionary computer algorithm in 1984 (below right).

components of the 22 Bell operating companies – the monopoly parts providing local-exchange and local-access services to long-distance and international networks. This arrangement would eliminate any advantage AT&T had over other long-distance-service providers in access to customers, ensuring real competition.

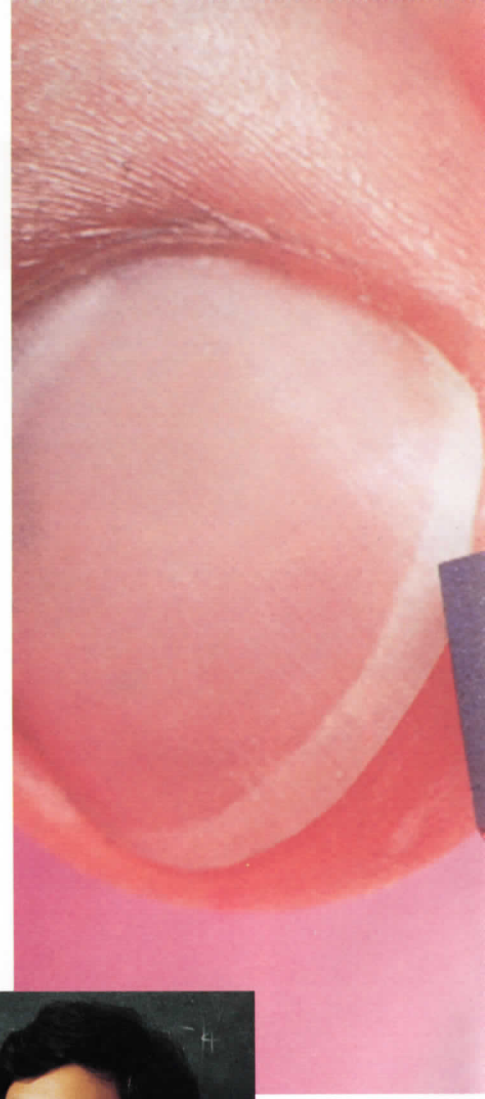
On Jan. 8, 1982, the now-famous agreement was announced to a stunned nation at a news conference in Washington, D.C.

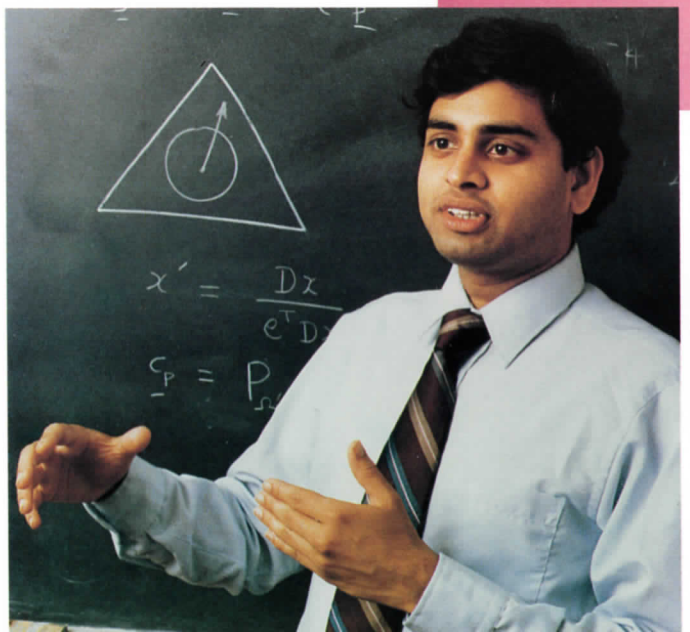
AT&T Chairman Charles Brown called the agreement a "historic decision, one not easily reached when you seek to balance the interests of tens of millions of consumers, the rights of 3 million shareowners, an important obligation to 1 million employees, our duty to assure national defense communications and our singular role in the partnership which manages that unique national resource – the best communications system in the world. I am confident we have chosen the right course."

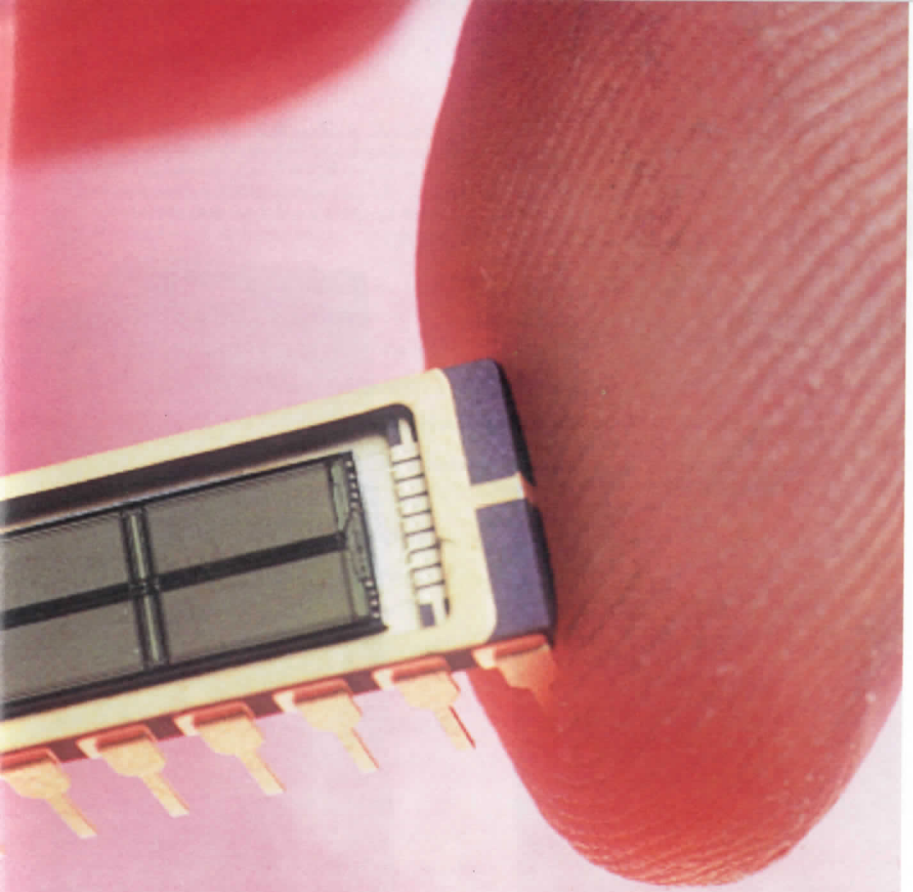
When AT&T officially divested the local telephone companies on Jan. 1, 1984, it marked the end of two exhausting and confusing years for Bell System employees, who had to simultaneously make the transition work, maintain high levels of service, and decide with which part of the company they wanted to continue working.

Meanwhile, tangible results of the industry and technological changes that made competition feasible came quickly to customers. One of the most visible, and probably best remembered, results for residential customers was the process of choosing long-distance providers – "equal access." Not too surprisingly, a vast majority of customers chose to stay with AT&T.

People also engaged in a mad scramble to buy both AT&T and non-AT&T telephones from department stores and electronic shops. Customers, brought up in the world of leasing, now took telephone sets







The world of telecommunications gets smaller even as it grows (left). AT&T Chairman Bob Allen, left, and McCaw Cellular Chairman Craig McCaw in 1994 as they announced the completion of the merger of two industry leaders (below left).

home, plugged them into newfangled jacks, and certified them for service with their local telephone companies.

Since then, under the leadership of three CEOs — Charles Brown, Jim Olson and Bob Allen — AT&T has instituted strategic and structural changes required to meet the challenges of the turbulent postdivestiture communications industry.

The new world of competition set in motion a decade-long spectacle of telecommunications and computer companies dividing, merging, competing and collaborating to meet regulatory restrictions and market opportunities. AT&T led the way, entering into a variety of strategic arrangements as part of a design to build an enterprise with an unmatched breadth and depth of capabilities.

The mergers with NCR and McCaw are cases in point — the former an old, established business with a global track

And When The Going Got Tough ...

When trouble strikes, communication becomes more precious than ever. For over a century, AT&T people have pulled out all the stops to restore or preserve communication in the face of earthquakes, hurricanes, fires, floods, even acts of war.

Trucks bearing the logos of AT&T and our subsidiary phone companies would be waved across police lines, heading towards the heart of the disaster, often while the fire was still burning or the storm was still raging. Sometimes dangerous, always difficult, the work was done well and done quickly, by people who understood without being told that they were providing a vital service.

In disasters like the 1975 fire in lower Manhattan that knocked out our busy switching center, AT&T marshaled a small army of people from Bell System companies all over America. Smaller contingents of AT&T people have flown off to foreign countries like Nicaragua and Armenia on a few hours notice to help restore international service knocked out by powerful earthquakes.

There's an old maxim in athletics that says "when the going gets tough, the tough get going." By that standard, AT&T people proved themselves among the toughest in the world.

ATMs from NCR, such as this one in Hong Kong, help banks provide services 24 hours a day (right). In 1994, AT&T Power Systems (now part of Lucent Technologies) became the first American manufacturer to win Japan's prestigious Deming Prize (below right).

The Malcolm Baldrige National Quality Award (below), won in 1992 by AT&T Universal Card Services and AT&T Transmission Systems (the latter is now part of Lucent Technologies), and in 1994 by AT&T's consumer long-distance business.

The Sound of Cash

The story of NCR began in Dayton, Ohio, in 1884, when the company's founder, John H. Patterson, acquired the rights to an innocuous device called the cash register. By the turn of the century, he had made the machine the essential tool for retailing. Along the way, Patterson introduced most of today's merchandising methods — from direct-mail selling to sales quotas and annual sales conventions. By 1917, NCR had gained 95 percent market share in the world cash register market. The company soon began a shift into the new accounting machine era. During the 1930s, NCR grew substantially overseas. It expanded throughout the British Empire, and into Europe, the Middle East and Far East. After World War II, NCR opened a manufacturing facility in Dundee, Scotland, to turn out cash registers for the global market. Today, Dundee manufactures automated teller machines (ATMs), an NCR product that revolutionized banking. The company also was a pioneer in computer-based business equipment products and microelectronics. The new NCR is focusing on large systems, services expertise and its core strengths in high-availability transaction processing and scalable data-warehousing in the retail, financial and communications industries.

record of successful competition in transaction-intensive computing solutions, and the latter as young and flourishing as the high-flying cellular-communications market. Bringing these market leaders into the fold made much sense, although the evolving marketplace and AT&T's corresponding change in direction would eventually reveal that NCR could create more value as an independent company.

AT&T became a global company, offering the most sophisticated telecommunications services over a network that reaches every corner of the planet. It expanded equipment manufacturing outside the U.S., and became one of the world's largest communications equipment suppliers. Alliances with many other multinational companies have helped solidify the positions of AT&T and Network Systems – now part of Lucent Technologies – as major global players in the communications industry.

As AT&T has increased its global presence, its logo has become a familiar sight in China and countless other places around the globe (below). Floor of the New York Stock Exchange (right) the day Lucent Technologies stock began trading — April 4, 1996.

Employees grew as well, learning how to make their businesses thrive in competitive markets. Giving employees more freedom of responsibility and accountability for their work has allowed AT&T to expand and reshape itself. Perhaps the most visible spur to this effort was "Our Common Bond," a set of values that serve as guidelines for how AT&T wants to do business.

And the original service ethic that was the foundation of the company has been successfully kept intact.

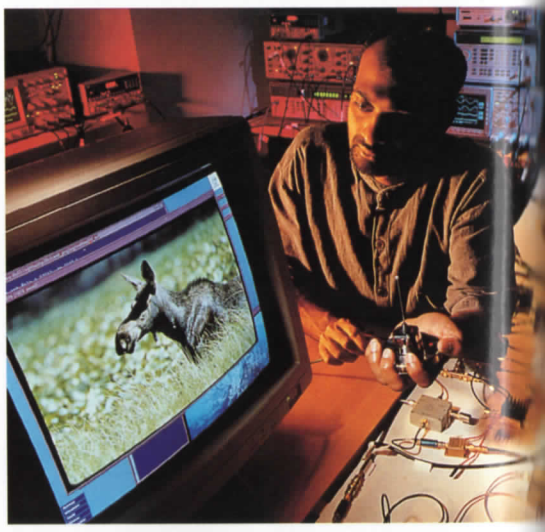
Meanwhile, the communications landscape has

Consumer Products' Two-Line Personal Information Center 882 does double-duty as a phone and personal data organizer (left). Through its use of cable ships (below), AT&T has installed enough undersea communications cable to circle the equator six times.

A Bell Labs research team has devised a way to reliably transmit compressed color still images over wireless channels (below).

changed dramatically, in ways that could not have been imagined at divestiture. In the last two decades, the management and movement of information developed into an industrial tool that has been an engine of economic growth. By the 1980s and '90s, the toll-free 800 service developed by AT&T in 1967 clearly had revolutionized the way people do business. And the skids of global commerce were being increasingly greased by offerings that provided businesses everything from private-line voice communications to high-speed data-transmission services.

Meanwhile, businesses and consumers benefited as digital technology replaced analog, copper wires were changed to fiber-optic cables, and long-dis-

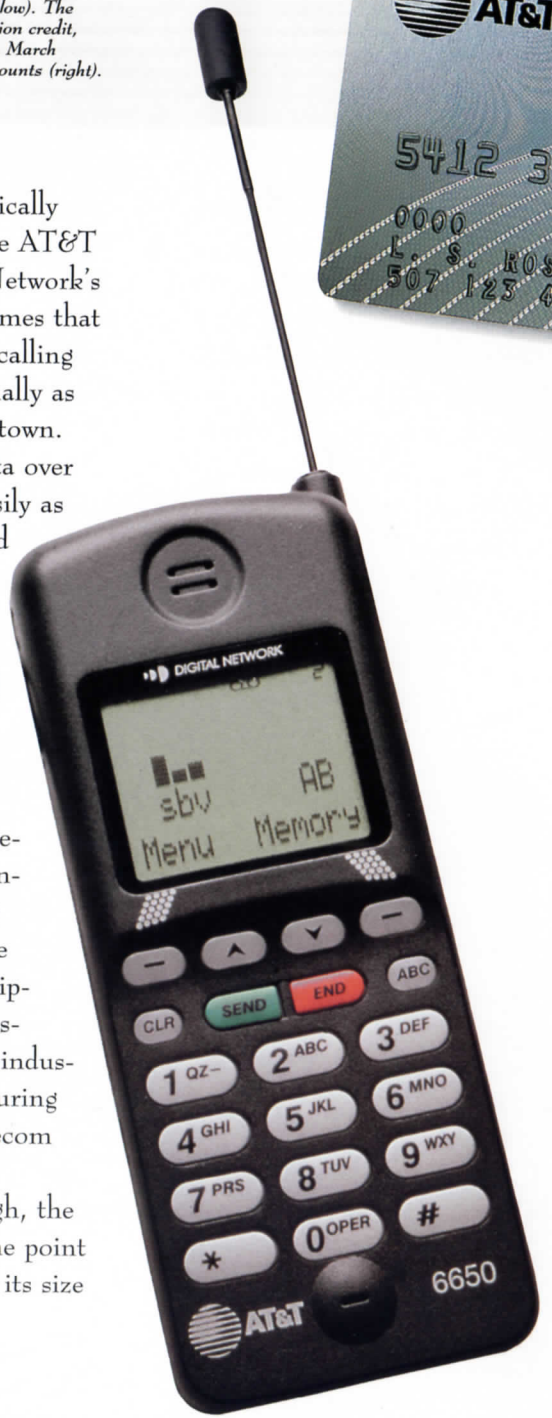


The AT&T 6650 cellular phone (below). The AT&T Universal Card, a combination credit, cash and calling card introduced in March 1990, has 18 million customer accounts (right).

tance prices fell dramatically beginning in 1984. The AT&T Worldwide Intelligent Network's 1995 volume was 10 times that of 1984. People began calling across the world as casually as they once called across town. And businesses sent data over and under oceans as easily as they once communicated down the hall.

As companies increasingly looked outside their traditional markets for growth, AT&T's services businesses expanded to include credit cards, wireless communications, online services, consulting and even access to home entertainment. The equipment side found new customers in the cable-TV industry, computer-manufacturing markets and foreign telecom administrations.

By 1995, though, the company had reached the point where the advantages of its size and scope were becoming offset by the time and cost of coordinating and integrating sometimes-conflicting business strategies.

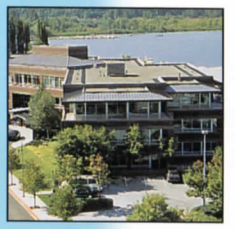


The Network Systems organization, in particular, was hampered in selling equipment to the Bell companies, which saw AT&T's Communications Services Group becoming increasingly competitive with the Baby Bells.

So once again, to enable the company's businesses to take advantage of the growth opportunities in their parts of the information industry, AT&T's leadership saw that it would have to separate into smaller and more-focused businesses. The goal for each: to combine the focus and energy of a start-up with the financial

Person-to-Person

The dream of AT&T articulated by Theodore Vail in 1908 was universal access to every American home and business. Much later, the dream of McCaw Cellular Communications Inc. was universal access to every American. McCaw jumped to the top of the wireless communications market in just 14 years from its birth in 1973. Analysts consider wireless the fastest-growing segment of the telecommunications industry, expanding yearly between 30 percent and 40 percent. In less than a decade, the number of cellular phone subscribers has increased from fewer than 100,000 to more than 16 million, while annual revenues in the cellular industry have jumped from less than half a billion dollars to nearly $11 billion. As the leading provider of wireless communications services in the United States, AT&T Wireless Services (McCaw's new name) offers such diverse products as cellular telephones, paging, personal communications services, wireless/data transmission, and air-to-ground, satellite, voice and data communications. It has more than 6 million subscribers and annual revenue of more than $2.9 billion. Its target: to provide the best, most innovative global wireless-communications solutions.



Part of the change of the 1990s is the mobility represented by cellular phones (right). Students access AT&T WorldNet℠ service — the company's "Internet for Everyone" on-line access service (below).

AT&T has partnered with DIRECTV to bring DIRECTV digital satellite home entertainment service, DSS* (Digital Satellite System) equipment and U.S. Satellite Broadcasting** programming to customers (below).*

strength and resources of a market leader.

After gaining approval of the Board of Directors, Chairman Bob Allen — on Sept. 20, 1995 — made the company's most stunning announcement since 1982. "Each of our shareowners' businesses will now be free to follow its individual path to creating greater value without worrying about bumping into another AT&T unit along the way," Allen said.

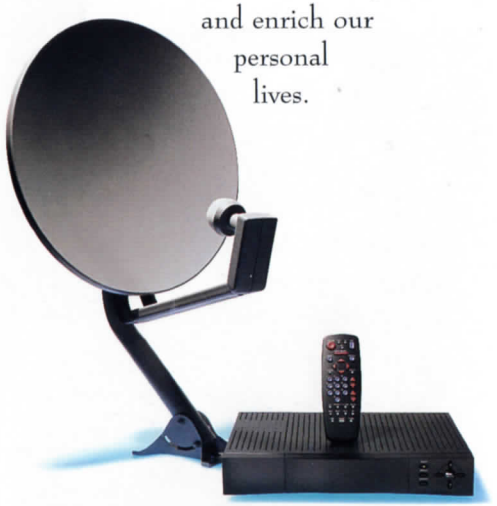
And whereas divestiture was thrust upon AT&T, Allen pointed out that AT&T undertook "trivestiture" by its own choice. "It's a step that anticipates the direction our industry is taking and gets us ahead of the curve."

Allen was proved right five months later when the U.S. Congress passed the Telecommunications Act of 1996 in February, clearing the way for the new AT&T to compete in local-services markets. It also allows for the Bell companies to enter the long-distance industry, but only after their local markets are open to competition. Less than a month later, AT&T had filed to provide local services in all 50 states.

And who knows what else the future holds? What innovations will Bell Labs create, now that Lucent Technologies can sell to new customers? How will NCR make its presence felt when it's on its own again? And in what ways will AT&T use its leadership position to help reshape the communications services industry in the wake of the Telecom Act?

We can all make educated guesses, but in the end the future promises only one thing — more change.

That change will mean more choices for customers, and more value for consumers and businesses as the vibrant, global communications industry continues to enhance our economy and enrich our personal lives.

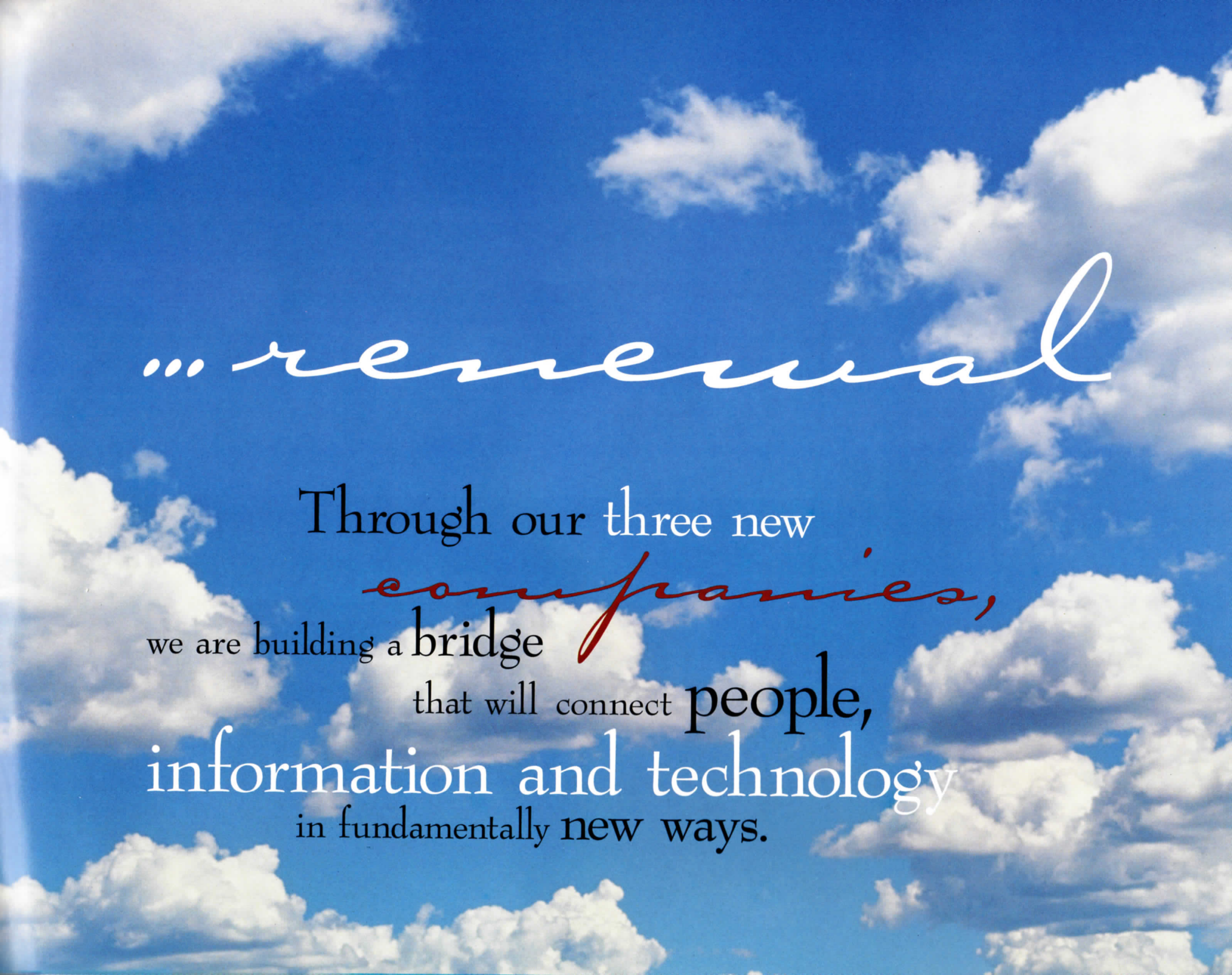


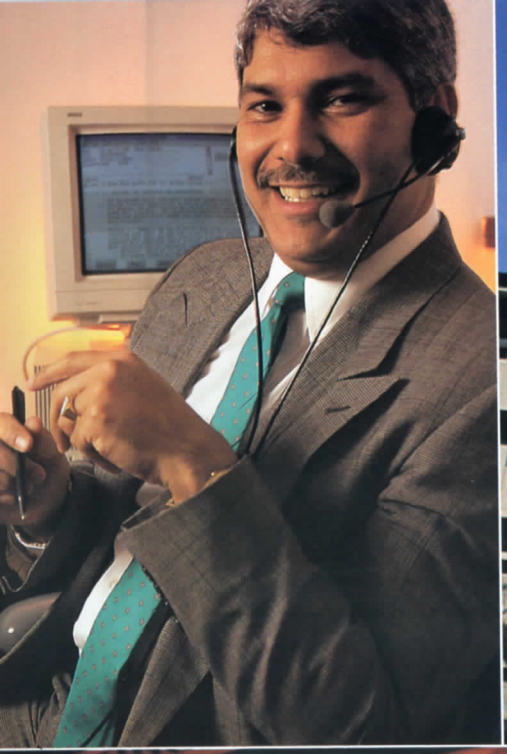
"Defying Merger Trend, AT&T Plans to Split Into Three Companies"

— The New York Times, 1995

* *DIRECTV and DSS are official trademarks of DIRECTV Inc., a unit of Hughes Electronics Corp.*

** *U.S. Satellite Broadcasting is a service mark of United States Satellite Broadcasting Co., Inc.*


renewal
Through our three new
companies,
we are building a bridge
that will connect people,
information and technology
in fundamentally new ways.



AT&T's highly skilled service associates (above left) handle more than 4 million customer interactions every day.

Electronic commerce (left) is changing the way businesses do business. AT&T provides tools to help businesses automate everything from handling information requests to managing their ordering, payment and shipping processes.

AT&T's signature building in Basking Ridge, N.J.

To The People of AT&T:

When we announced our decision to break up AT&T into three independent companies, it was understandable that some people assumed the one company that would carry the name AT&T would be the least changed of the three.

But that's hardly the case.

As the "new" AT&T, we've hitched our future to the global market for communications and information services. And that market is headed for change so fundamental that it won't be recognizable five or 10 years from now.

It is a market worth $1 trillion right now, and headed toward $2 trillion by the time we ring in the new century in less than five years.

We intend to take the lead in making the powerful changes in this market work for us, our customers and our investors. And in the process, we intend to grow the new AT&T dramatically over the next 10 years.

To do that, we're going to do something the industry has talked about for years, but no major company has ever done. We're going to offer customers a full menu of services that blend communications, information services and entertainment – anytime, anywhere.

We'll offer customers as little or as much as they want. But one source at AT&T will get them services in whatever combination they need if that's how they prefer to buy, and market research says that they do.

We will combine services to meet the needs of customer groups as divergent as Fortune 500 companies, work-at-home entrepreneurs or college students. This targeted approach is the heart of the strategy behind our "Target: Growth" plan for the future.

Familiar, reliable phone service – be it local, long-distance or a combination of the two – will always be an important part of our offer to customers. But no company can build a future exclusively on what this industry calls "POTS" (Plain Old Telephone Service). Given changes in competition and technology, future growth will increasingly come from new services.

To put this shift in perspective, consider the economics to us. The new AT&T starts life as a $51 billion-a-year company. Our strategy challenges us to become a company of at least double that size. And more and more of our revenue will have to come from businesses other than long distance.

So we will offer customers end-to-end communications that will include wireless and wired services, on-line and Internet-access services, and access to home entertainment. We'll deliver all or any of this to the customer's home or office.

Given the way the new Telecommunications Act opens up the American market to new competition from the Bell companies and other players, our total customer base of traditional long-distance customers will get smaller over the next 10 years. But by offering a higher-value proposition to our customers – and deepening

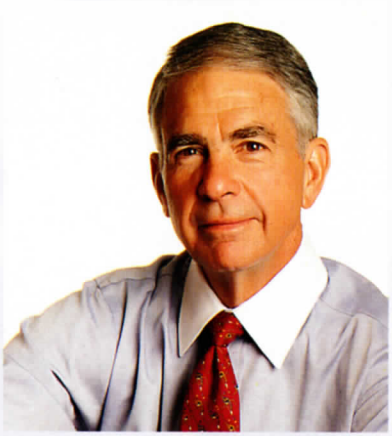
our relationship with them – we will aim to have each customer buy more from AT&T.

This is a strategy solidly rooted in the real world of customer needs – needs as of right now and needs quickly emerging for the future. To be the leader in meeting those needs, our organization will become more market-focused than ever. To stay ahead of the competition, we are building an operating environment that encourages performance, accountability, empowerment of individuals and speed of execution.

We're also making a huge investment in training our people to make sure they have the skills to win in our highly competitive markets.

Meanwhile, there's no shortage of opportunities and challenges in the here-and-now. So the new AT&T has moved out of the chute quickly. Just since January we've:

- Launched both business and consumer services in the United Kingdom – the first time we've ever set up shop in a country outside the United States to compete directly with the dominant national provider.
- Filed to offer local service in all 50 states, less than three weeks after the Telecom Act was signed.
- Rocked the on-line services industry with our WorldNet offer for Internet access. More than 400,000 customers have already snapped up that offer.
- Activated America's next generation of wireless service with introduction of AT&T Digital PCS, offered to 70 million potential customers in 40 metropolitan centers across the United States.
- Seen AT&T Solutions – the company's consulting, systems integration and outsourcing practice – enter into several major agreements, involving such firms as financial services leaders MasterCard International, Merrill Lynch and J.P. Morgan.
- Announced that the great home entertainment packages created by DIRECTV and U.S. Satellite Broadcasting are available from AT&T in the 48 contiguous U.S. states.



We will miss our Lucent Technologies and NCR colleagues, and we wish them well. But we're on our way. We don't lack for competition and we don't lack for challenges. But we stand on our values and our heritage. And I am confident that AT&T people, working together, will write a new and unprecedented chapter in the history of this great company.

Bob Allen
Chairman and CEO

Managers at the AT&T Network Operations Center in Bedminster, N.J. (large photo). In mid-1996, more than 210 million voice, data and video calls traveled the AT&T network on an average business day.

Insets (clockwise, from upper left):
In partnership with DIRECTV and U.S. Satellite Broadcasting, AT&T offers customers a wide variety of entertainment on more than 200 channels.

Operating in locations from virtual offices to building lobbies, AT&T employees can serve customers anywhere, anytime.

As a Centennial Olympic Games Partner, AT&T supported the 1996 Olympic Games with advanced technology, special hospitality programs, and thousands of volunteer workers.

AT&T Wireless Services brings anytime, anywhere communications to people on the go, as well as those in need of emergency assistance. AT&T Wireless Services offers advanced messaging, wireless data and aviation communications services.

Lucent Technologies headquarters building in Murray Hill, N.J. (large photo).

Insets (clockwise, from left):
Preparing optical fibers for fusion-splicing at Lucent Technologies' Atlanta Works facility.

Raising the company flag in front of the Murray Hill, N.J. headquarters moments after Lucent Technologies' name was announced to employees worldwide.

Adding components to one of the wireless personal communications services (PCS) minicells produced at Lucent Technologies' Mt. Olive, N.J., facility.

Inset (upper right):
Using new state-of-the-art computer equipment to design and develop next generation microchips in a Microelectronics clean room in Allentown, Pa.

To The People of Lucent Technologies:

You are part of an unfolding drama – a once-in-a-lifetime opportunity to launch a new company and carve out a new standard in the global communications marketplace.

Lucent Technologies is looking to the future with confidence. Much of that confidence comes from our past – from more than a century of innovation that began in 1869 with a small firm called Gray & Barton. Through more than 125 years, and several familiar names, including Western Electric, our company has made its mark by turning Bell Labs' dreams into marketplace realities. Staying on the leading edge of technology has been a way of life.

Technological leadership remains a top priority for Lucent Technologies. With the inventive power of Bell Laboratories as the backbone of our enterprise, we will continue to thrive with creative ideas and breakthrough technologies.

With our powerful range of systems and technologies, the competitive spirit of the best people in the industry, and a global marketplace that is exploding with opportunity, Lucent Technologies finds itself at the right place, at the right time, with the right strengths.

We have unmatched abilities to build networks and everything that makes networks work – from microchips to software systems; from telephone sets and answering machines for homes to communications systems for small businesses; from complex systems that link large enterprises in multimedia networks to vast network infrastructure systems that support public telephone networks around the world.

In our advertising campaign we tell people that "We make the things that make communications work." It's simply put, but that's really what we are all about.

We have the most experienced people in the world at building public and private networks, advanced software systems and communications products. We have high-quality manufacturing processes that produce the most reliable products and systems in the world – processes that have won us the Baldrige, Deming and Shingo quality prizes. World-class facilities such as our Product Realization Center in Mount Olive, N.J., demonstrate manufacturing innovation at its very best.

Backed by these strengths, we plan to provide our customers with the world's best and most innovative communications systems, products, technologies and customer support.

We are committed to holding on to the best attributes of our past as we embrace a set of values that reflect the uniqueness of our new company.

Those values begin with a powerful conviction that customers are central to all we do. So, a strong customer focus, combined with a commitment to speed, innovation and quality, will guide our actions as we strive to understand

their needs and exceed their expectations. A set of personal values will unite the people of Lucent Technologies in the day-to-day job of meeting our customers' needs.

Our values, combined with our heritage and commitment to building a successful future, will help form the soul of our new company.

Our strategy flows from the many forces that are reshaping the telecommunications industry and creating new opportunities in areas that represent our core competencies: networking, software and microelectronics.

Experts are predicting an overall industry growth rate of more than 10 percent, and we intend to capitalize on the highest-growth segments around the world by leveraging our strengths in the provision of wireless, multimedia systems and networking software.

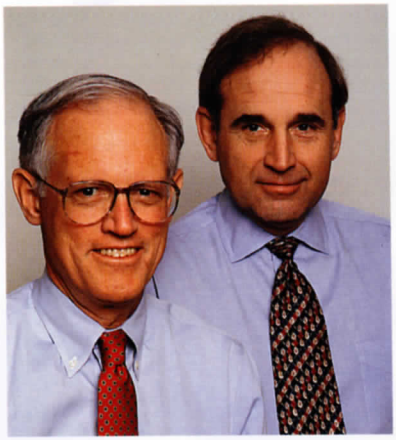
Our growth will come from new products, new markets and new prospects in traditional markets, such as long-distance providers that were reluctant to buy systems from AT&T in the past.

We are convinced that we have the right team in place to make the best of the opportunities ahead as we write an exciting new chapter in our history.

The units that have evolved to form Lucent Technologies became part of AT&T in 1881. Our mission was to achieve universal telephone service for America. We accomplished that as we invented and built the finest network in the world. We all share that proud legacy.

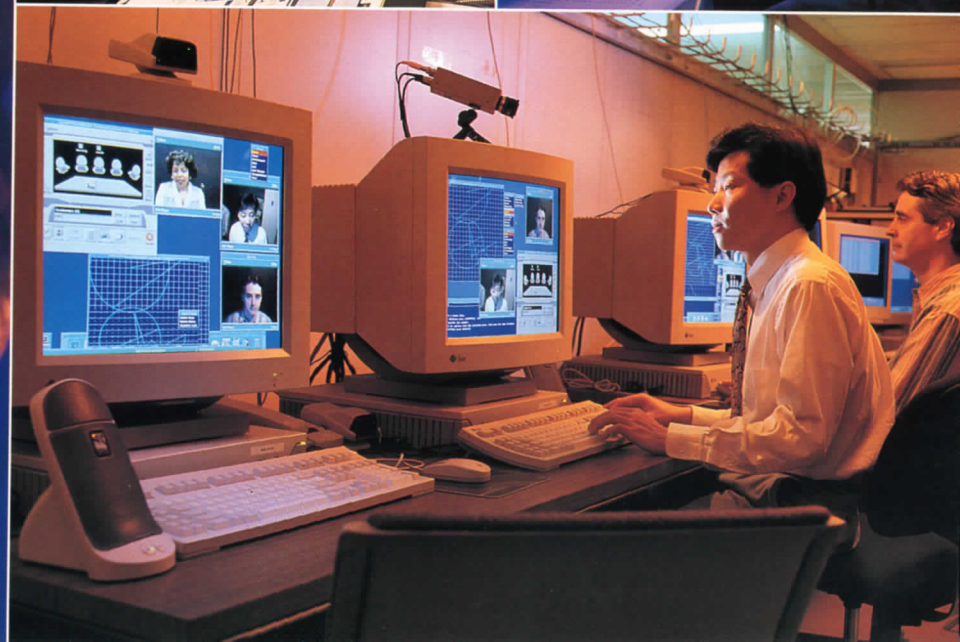
As we prepare for a new beginning as separate companies, the people of Lucent Technologies wish our colleagues at AT&T and NCR the very best.

At Lucent Technologies, we are working to build a company that's known for integrity, quality, innovation and class – in those respects, a company much like AT&T.



Henry Schacht
Chairman and
Chief Executive Officer

Richard McGinn
President and
Chief Operating Officer



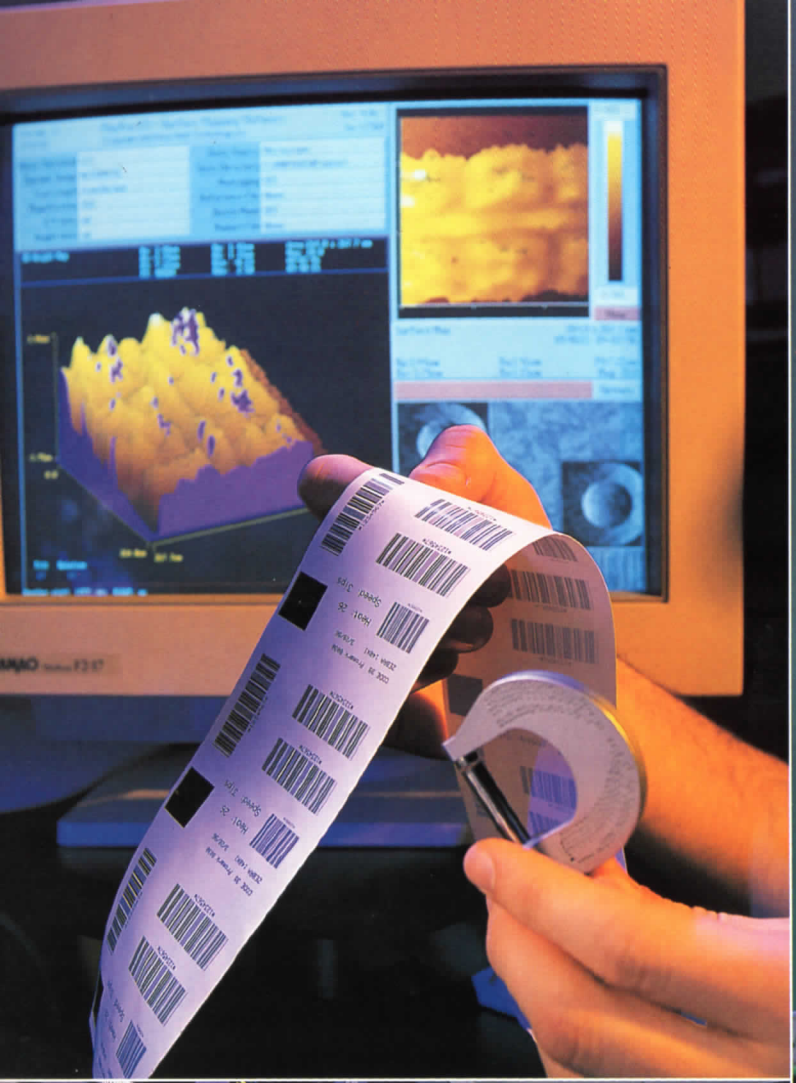
Lowering a fiber-optic preform into a furnace to melt it in preparation for drawing it into a hair-thin optical fiber (large photo).

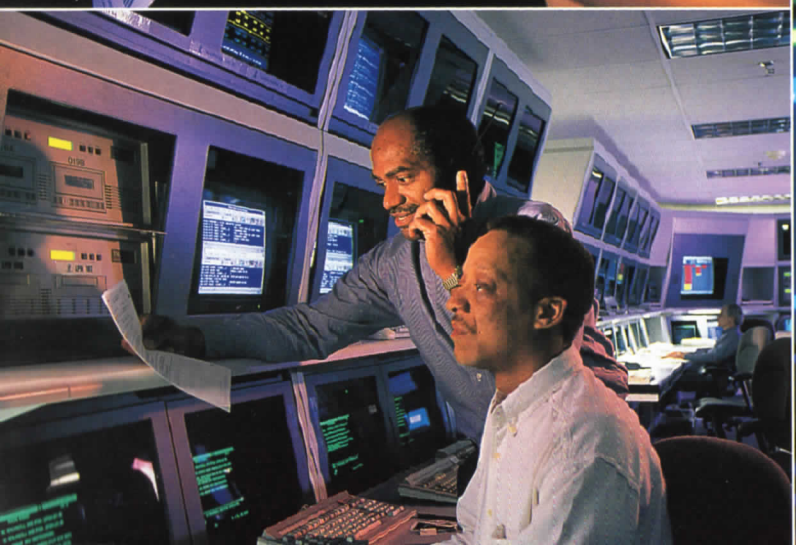
Inspecting the growth chamber (top right) where quantum-well laser chips are fabricated. The chips are used in fiber-optic networks around the world.

Demonstrating Consumer Products' corded and cordless phones to a customer in Chicago (center left).

Analyzing software and hardware architecture for broadband systems (center right) at Bell Labs facilities in Naperville, Ill.

Testing a new multimedia communications server from Lucent Technologies that allows real-time video-conferencing and data-sharing (right).





NCR Systemedia R&D engineer analyzing surface texture of a barcode from the latest high-temperature resin ribbon for the Thermal Ribbon product line (top left).

The Americas Regional Processing Center (bottom left) uses 480 processors at three locations to provide NCR efficient information processing services.

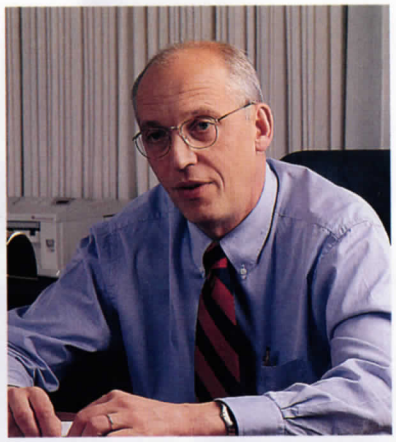
Color-coded indicators show status of routers and communications lines to help NCR manage its global communications network around the clock (large photo).

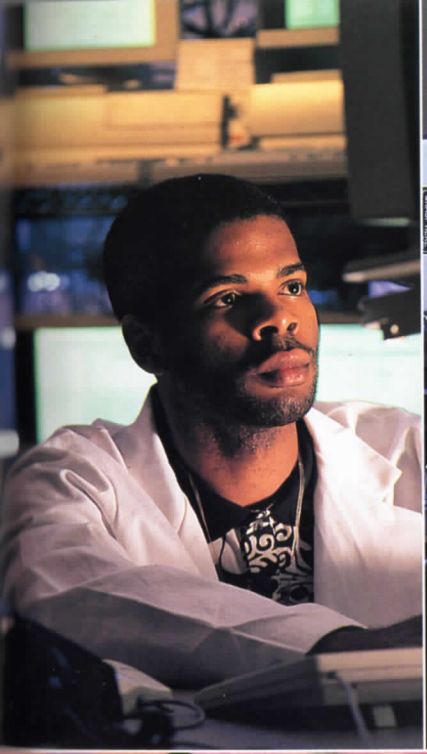
A global presence will continue to be one of our greatest strengths. More than half of NCR's revenue is generated outside the United States. We have customers in 191 countries. We have associates in more than 130 countries and our Financial Systems Group is headquartered in London. We estimate that the global market for our computer systems and services is already nearly half a trillion dollars, and is growing at more than 7 percent a year.

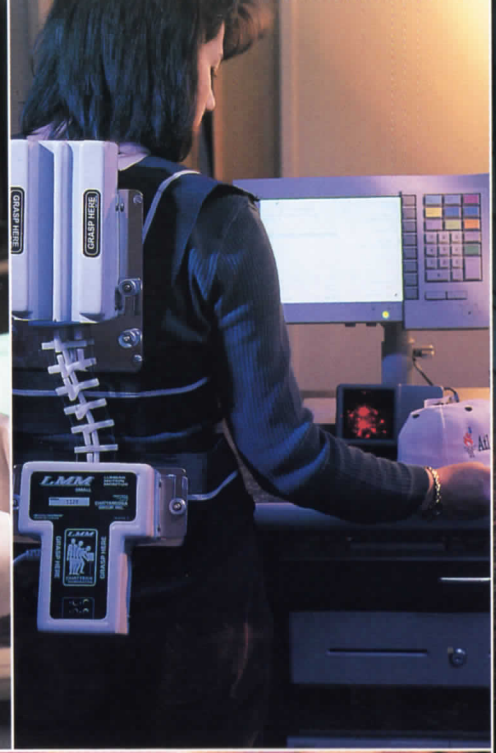
It is the people of NCR who will bring our technology, products and customers together to meet our potential. The changes and challenges our associates have faced, endured and in most cases overcome are a tribute to the spirit that will make this company a success. Our people have demonstrated determination, integrity and respect – the kind of values that have made and will continue to make NCR a great place to work.

Relationships change over time. Today's colleagues may be tomorrow's customers or business partners. As the varying destinies of AT&T, Lucent Technologies and NCR play themselves out, I want to wish our colleagues the best of luck as we all move forward to perhaps cross paths in different ways in the future.

Lars Nyberg
Chief Executive Officer







Clockwise, from upper left:
Retail Systems Group technician tests to assure interoperability of complex systems of NCR software, point-of-sale terminals and computers.

NCR Human factors team studies motions to understand worker comfort and productivity at check-out stations designed for the 1996 Olympic Games.

NCR World Headquarters in Dayton, Ohio.

The Usability Lab at NCR's Human Interface Technology Center enables scientific analysis of human interaction with new technology.

Award-winning NCR 7870 bi-optic scanners being readied for shipment at the Retail Systems Group facility near Atlanta, Ga.

HERITAGE, CHANGE AND RENEWAL

ORIGINAL CONCEPT
Marianne Carlton
Mike Cocca

PROJECT MANAGER
Mike Cocca

ADDITIONAL SUPPORT AND COORDINATION
AT&T:
Paul La Plante
Marcia Mack
Jon Mellor
Kit Stinson
Linda Terminiello
Lucent Technologies:
Ollie Hartsfield
NCR:
Walt Gasior
Joe Horine

TEXT
Don Vandegrift

ADDITIONAL TEXT
Bruce Brackett
Carl Kelly
Lorrie Temple
Anne Wainscott

PROOFREADING AND SPECIAL EDITING
Tom Landers

DESIGN
Bessen Tully & Lee
Joseph P. Tully, Creative Director
Marc R. Gagnon, Art Director

HISTORY AND RESEARCH
AT&T Archives:
Sheldon Hochheiser
Bunny White
NCR Archives

DIGITAL TRANSFERS/TITLE PAGES
Rick Barrick

DIGITALLY TINTED PHOTOGRAPHS
Carol Braverman

PHOTOGRAPHY
Gloria Baker
Bettmann Archive
Peter Byron
Will Cofnuk
Culver Pictures
FPG International
Michael Gaffney
Gail Hannagan
Dave Hoffman
The Image Bank
Preston Lyon
Warren Mell
Frank Moscati
Vincent Nanfra
Gary Oliver
Chuck Pason
Roger Tully
Peter Vidor

PRODUCTION SUPPORT AND SCHEDULING
Bob Feinstein

PLANNING AND BUDGET
Betty Torell

PREPRESS
DOTS

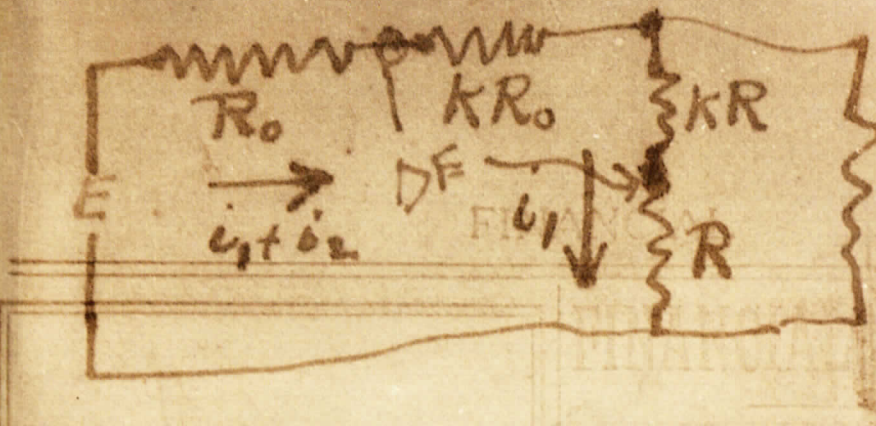
PRINTING
Pace Press

Printed on recycled paper.

Inside front cover:
A detail from an entry in Thomas Watson's notebook on March 10, 1876.

Page 1:
Commissioned in 1914 by Theodore Vail, this winged statue clutching a telephone cable in one arm and lightning bolt in the other was originally named "Electricity." It was eventually renamed "The Spirit of Communications," representing the world-uniting power of telecommunications. But almost from the beginning, employees have affectionately called it "Golden Boy." After adorning AT&T headquarters at 195 Broadway in New York for decades, it was moved to 550 Madison Ave. in 1983, and then to Basking Ridge, N.J., in 1992. The gold-leafed bronze figure is 24 feet high, weighs 16 tons and has a wing span of 12 feet.

Inside back cover:
In 1927, Harold Black sketched the formula for a new kind of amplifier circuit on a page from The New York Times.



$$\Delta E = (i_1+i_2)KR_0 + i_1KR$$

$$\Delta E = K[i_1(R_0+R) + i_2R$$

$$E = i_1+i_2(K+1)R_0 + i_1(K+1)R$$

$$E = [K+1][(i_1+i_2)(R_0) + i_1R]$$

$$E = (K+1)[i_1(R_0+R) + i_2R$$

$$E = (K+1)[i_1(R_0+R) + i_2R_0]$$

$$\frac{\Delta E}{E} = \frac{K}{K+1}$$

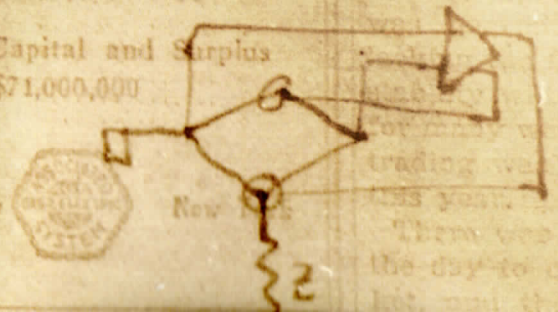
$$\frac{\delta E}{E} = \frac{K}{1+K} = 1+$$

$$\frac{E}{\delta E} = \left[1+\frac{1}{K}\right]$$

$$\mu = 1+\frac{1}{K}$$

$$\frac{1}{K} = \mu - 1$$

$$K = \frac{1}{\mu-1}$$



AT&T