

The Cooling of the South

With the discovery of fire, man conquered cold. Beating the heat was a more daunting challenge. In ancient Rome, patricians simply fled to the Alban Hills to wait out the sultry summer months. Caliph Mahdi of Baghdad was more ambitious. In A.D. 775, he began cooling his garden by packing the hollow walls around it with snow from nearby mountains. Some 700 years later, Leonardo da Vinci devised a water-driven fan for a patron's home. Not to be outdone, one 19th-century inventor built a venetian blind "suit" of clothes that permitted ventilation but blocked out direct sunlight. Only with the development of the mechanical air conditioner in the 20th century did man come up with a practical form of summer relief. As historian Raymond Arsenault points out, the air conditioner has done more than lower indoor temperatures; it has also contributed to social and economic change, notably the "Americanization of Dixie."

by Raymond Arsenault

"Let us begin by discussing the weather . . . the chief agency in making the South distinctive."

So opens Ulrich Bonnell Phillips's *Life and Labor in the Old South* (1929). According to Phillips, the hot, humid Southern climate "fostered the cultivation of the staple crops, which promoted the plantation system, which brought the importation of Negroes, which not only gave rise to chattel slavery but created a lasting race problem. These led to controversy and [North-South] rivalry for power, which produced apprehensive reactions and culminated in a stroke for independence. Thus we have . . . the Confederate States of America."

Thus did Phillips slice through the

complexities of two centuries of Southern history.

Most modern scholars have correctly questioned the existence of such a direct link between climate and human destiny. But the search for the more subtle influences of climate on culture and history has continued. Climate may not be the only key to history, but in areas such as the American South it clearly has mattered a great deal.

As historian Charles Roland once noted, "The climate of the South affected the rhythm of life, slowed its beat." Throughout the 19th century, the oppressive weather in such cities as Mobile, Alabama, and Jackson, Mississippi (where summer temperatures hover steadily in the 90s and

humidity remains at 80 percent or above for weeks on end) was one of several factors that encouraged successive waves of European immigrants entering the ports of New York and Boston to head west, not south, where, as a result, a relatively stable black-and-white society faced few challenges from newcomers.

Farming predominated in a land where the growing season was twice as long as in the North. During the ante-bellum era, and for nearly a century after the demise of plantation slavery, black and white farm families comprised the majority of the Southern population; poor land, the crop-lien system, and backward farming methods reduced many of them to eking out an existence at the mercy of market and climate.

And with work indoors under fac-

tory conditions uncomfortably hot at best, it is hardly surprising that Clarence Cason noted as late as 1935 "a lack of industrial predisposition among the natives." As he put it, the "indigenous bias of the Southerner tends to influence him toward a sole dependence upon the soil."

Tied to the land, with few big cities, Southerners treasured life on the family homestead or in the small town where, in the words of Faulkner, "beneath the porticoes of the courthouse and on benches about the green, the city fathers sat and talked and drowsed. . . ." Family ties and local folklore ruled life in a region that preferred, as John Crowe Ransom said, "to look backwards rather than forwards." Long after the Civil War, the inhabitants of the old Confederacy remained culturally dis-



Taking their ease in late August 1940 was this family in Lawrenceburg, Kentucky. In the heat and humidity of summer, Southerners could hardly be blamed for taking naps on shady porches or under sheltering oaks.

tinct, a people apart from the rest of the Union and its ever-changing ethnic "melting pot."

Air conditioning has helped to change all that.

Many Southerners who are old enough to remember life before the air conditioner give thanks for the artificial chill that now pervades cars, restaurants, offices, and family rooms, and wonder out loud how they ever survived without it. Others echo the sentiments of one Florida woman who recently told me: "I hate air conditioning; it's a damnfool invention of the Yankees. If they don't like it hot, they can move on back up North where they belong."

Whether they like the air conditioner or not, most Southerners would agree that the side effects of this new technology have eroded the old Confederacy's special character and contributed vastly to what journalist John Egerton has called "the Americanization of Dixie."

A New Dawn

When did the effort to counter the Southern climate begin?

The first primitive devices were invented during the 1830s by Dr. John Gorrie of Apalachicola, Florida (see box, pp. 154-155). Gorrie's invention inspired a host of imitators, many of whom eventually used the new technology in Southern textile mills and tobacco factories. But almost a century would pass before advances in design and engineering changed the purpose of cooling systems from ensuring efficient production on the fac-

tory floor to ensuring the comfort of men and women in home and office.

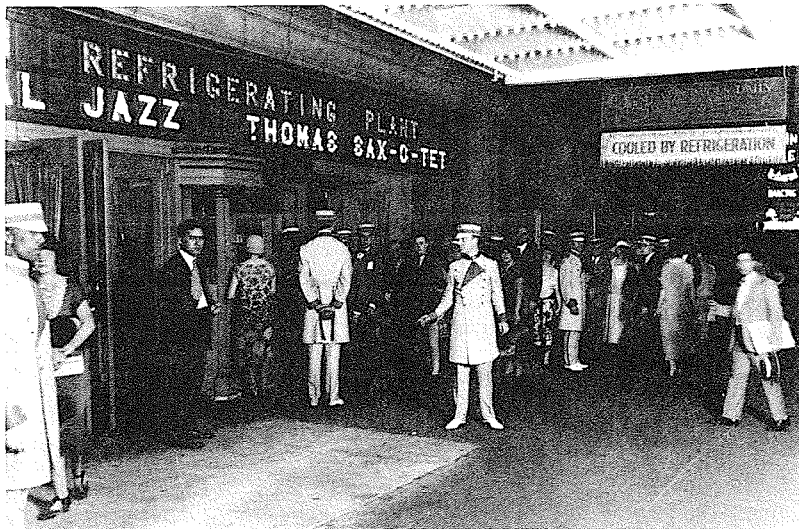
The breakthrough came in 1923, when W. H. Carrier coupled the centrifugal compressor to the air conditioner. By replacing the cumbersome piston-driven compressor, Carrier's innovation both reduced the size and increased the efficiency of air conditioners. He also substituted a safer refrigerant, Carrene, for the potentially deadly ammonia gas previously used. The age of "comfort cooling" had dawned.

Pup Tent

In the South, as elsewhere, the new age began at the movies. The Palace Theater in Dallas and the Texan and Iris theaters in Houston installed air conditioning during the summer of 1924. Signs advertising "cool and clear" weather inside lured an ever-growing crowd of moviegoers. Theater owners elsewhere in the South, many of whom had routinely closed their doors during the torrid summer months, quickly followed suit. The invention of Freon, a nonflammable refrigerant, in 1931 made air conditioning both safer and less expensive. As a result, by the beginning of the Second World War, most Southern movie houses were air-conditioned.

The arrival of air conditioning—paralleling the replacement of "ice-boxes" by refrigerators—in other areas of Southern life was far more gradual and haphazard. Banks and government buildings led the way. In Washington, D.C., the great chamber of the U.S. House of Representa-

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Air conditioning arrived on Broadway at the Rivoli Theatre in 1925, one year after its Southern debut at the Palace Theater in Dallas.

tives was air-conditioned in 1928, and the Senate followed in 1929 (leading, for better or worse, to longer sessions of Congress). Air conditioners were installed in both the White House and the Executive Office Building in 1930, and in the United States Supreme Court Building in 1931.

These early systems employed bulky air ducts that made cooling tall buildings both difficult and expensive; most big-city department stores, office buildings, and hotels in the South continued to depend on ceiling fans until the late 1940s. W. H. Carrier's perfection in 1939 of the Conduit Weathermaster System, which propelled cool air at high velocities through narrow tubes, finally provided relief for the sweltering occupants of metropolitan office blocks and skyscrapers from San Antonio to Washington.

Smaller retail stores were easier to

cool, and by the late 1930s most Southern cities could count a smattering of air-conditioned barber shops, hardware stores, funeral homes, drugstores, beauty salons, restaurants, and taverns.

Residential air conditioning long remained a luxury only the wealthy could afford. In 1928, Carrier and his associate Irvine Lyle formed the Carrier-Lyle Corporation, hoping to exploit the small but potentially lucrative home air conditioning market. Carrier-Lyle came out in 1932 with the Atmospheric Cabinet—a fairly compact, self-contained room cooler. *Business Week* predicted a year later that “the day is not far when the home air conditioning plant will be as universally accepted as the furnace.” In the same spirit of optimism, the Crosley Corporation introduced an air-conditioned canopy bed in 1934 called the Coolrest.

Unfortunately, the Carrier-Lyle

THE CULTIVATION OF COMFORT

During the 1830s, John Gorrie, a Florida physician, began experimenting with a crude form of mechanical cooling. In an attempt to lower the body temperatures of malaria and yellow fever victims, Gorrie suspended buckets of ice from the ceiling of the U.S. Marine Hospital at Apalachicola, Florida. The experiment yielded mixed results but left Gorrie obsessed with the healing potential of chilled air. His use of the steam-driven compressor to cool air led, in 1851, to a patent for the first ice-making machine.

Gorrie was eventually hailed as the inventor of "air conditioning," and, in 1914, proud Floridians placed his likeness in Washington, D.C.'s Statuary Hall.

But Gorrie was ahead of his time. One New York journalist sneered that "a crank down in Florida thinks he can make ice as good as Almighty God."

Nevertheless, experimentation in mechanical cooling and refrigeration expanded during the Civil War and the Reconstruction era. During the late 1870s, the refrigerated freight car revolutionized the meat-packing industry and spurred new interest in the technology of temperature control.

A number of inventors, including several Southerners, set out to prove that a device capable of preserving beef carcasses could also be used to cool live human beings. In 1880, two Alexandria, Virginia, engineers, Robert Portner and Edward Eils, designed a cooling apparatus that used a steam-driven ventilating fan to force air over refrigerated pipes. Installed in several breweries as a quality control device, the Portner-Eils system kept constant the temperature (and therefore the flavor) of beer.

The Gilded Age's most celebrated effort at artificial cooling began on July 2, 1881, when Charles J. Guiteau, a disgruntled office-seeker, shot and wounded President James A. Garfield. In an attempt to comfort the stricken Chief Executive, doctors used ventilating fans

Corporation went out of business in 1935, undermined by the deepening depression. And for some reason (perhaps because it looked like a pup tent attached to a refrigerator), the Coolrest bed never caught on.

Technological innovations during the 1940s—including experimentation with the heat pump—brought the dream of universal air conditioning closer to reality. In 1945, shipping magnate Henry Kaiser announced plans to build "complete communities of mass-produced, air-

conditioned homes." Led by Carrier, General Motors, General Electric, and Westinghouse, annual sales of room air conditioners climbed to over 40,000 by 1947. But residential models, often the size of a clothes closet, still accounted for only two percent of the air conditioning industry's total sales volume.

With the arrival of the inexpensive and efficient window unit in 1951 (perfected by the Carrier Corporation), sales skyrocketed. Aided by America's postwar prosperity, the

and 436 pounds of ice per hour to cool his White House bedroom. Despite their efforts, Garfield died two months later.

It was not until 1902 that engineer W. H. Carrier—a 25-year-old Cornell graduate—designed the world's first true air *conditioner*. Unlike previous systems, Carrier's machine, installed at the Sackett-Wilhelms Lithographic and Publishing Company in Brooklyn, could control both humidity and temperature by pumping air at a set velocity over coils refrigerated at a set temperature.

Carrier was based in Buffalo, New York, but his new technology was applied most rapidly in the South, thanks to the efforts of two young Southern engineers working with Carrier, Stuart Cramer and I. H. Hardeman. A textile engineer from Charlotte, North Carolina, Cramer actually coined the term "air conditioning" in 1906. Hardeman, a Georgia Tech graduate, convinced Carrier that air conditioning would eventually transform the textile industry.



Dr. John Gorrie

One of the industry's chronic problems, Hardeman pointed out, was its inability to regulate the moisture content in fibers, which often stiffened and snapped when subjected to the extreme heat generated by spindles. In 1906, Hardeman sold a primitive air conditioner to the Chronicle Cotton Mills of Belmont, North Carolina. Numerous North Carolina cotton and rayon mills followed suit. By 1909, air conditioning had entered the tobacco industry, where, by controlling moisture, it helped to ensure accurate weighing and pricing. The new machines, installed in tobacco stemming rooms, also filtered out the tobacco dust that had bedeviled workers for a half-century.

By the early 1920s, such "climate control" had spread to scores of Southern paper mills, breweries, and bakeries, a development that set the stage for its debut as a feature of everyday life in the decades ahead.

air conditioning industry encouraged buyers with a steady barrage of "Cool Air Clinics" and "Beat the Heat Weeks." Electric companies saw the air conditioner as a way to utilize previously idle summer capacity and discounted their rates.

As a result, Carrier's total sales revenues climbed from \$53 million in 1947 to \$100 million in 1952. By 1955, one out of every 22 American households had some form of air conditioning. In the South, the figure was closer to one in 10. Five years

later, U.S. census takers found air conditioners in 18 percent of the region's homes.

Meanwhile, home central air-conditioning systems—a scaled-down version of those used to cool offices and factories—had begun to compete with window units in Dixie's more affluent suburbs.

More than 400,000 Southern homes boasted central units in 1960. By the mid-1960s, "central air" cooled more than 40 percent of all new houses built in the South and

Southwest. By the end of the decade, 50 percent of the homes and apartments in the South as a whole were air-conditioned. The push-button, climate-controlled house was no longer the monopoly of the rich.

Factory Air

And, increasingly, Southerners escaped the burdens of heat and humidity as they commuted between work and home. A wealthy Houston businessman had devised the first automotive air conditioning system in 1930, fitting his Cadillac with a condensing unit on the trunk and an evaporator blower behind the driver's seat. In 1939, Packard became the first automobile company to offer air conditioning as a factory-installed accessory.

"Factory air" became a familiar feature in buses and automobiles in the South during the 1950s. By 1968, Teamsters Union president Jimmy Hoffa could demand that his truckers be provided with air-conditioned cabs on all long-distance Southern runs—hardly unreasonable in an age when thousands of Southern farmers were plowing their fields using air-conditioned tractors.

After the air conditioner claimed both home and automobile, there was no turning back. By the mid-1970s, despite the OPEC-induced increases in the cost of energy, air conditioning had infiltrated more than 90 percent of the South's high-rise office buildings, banks, apartments, and railroad passenger coaches; more than 80 percent of its automobiles, government buildings, and hotels; approximately two-thirds of its homes, stores, trucks, and hospital rooms; and roughly half of its classrooms.

Aluminum workers walked around their plant in Chalmette, Louisiana,

with portable air conditioners strapped to their belts. In San Antonio, Texas, even the Alamo had central air. In 1980, the annual electricity bill for air conditioning in Houston (\$666 million) exceeded the annual gross national product of several Third World nations, including Togo and Chad.

No wonder, then, that Southerners, even more than other Americans, came to regard air conditioning as a requirement for civilized living. Even the Internal Revenue Service allowed tax deductions for air conditioners used to alleviate allergies. Interior cooling became, as some would have it, a birthright.

Sun Belt Boom

Governor Richard Riley of South Carolina emphasized this notion at the 1980 National Governor's Conference in Washington, where he argued that federal fuel subsidies to the poor should now be awarded under the assumption that air conditioning a home in the South is no less essential than heating a home in the North.

Indeed, many people now inhabit the South who would not be living there without the air conditioner. And that reality is reflected in the growing Southern population. The population density of the South (82 persons per square mile in 1980) has doubled since 1930. Some of this increase can be attributed to the South's declining death rate, and much of it to an influx of Yankee retirees and job-seekers. Both phenomena owe a great deal to air conditioning.

The link between air conditioning and declining mortality is substantial. Prior to the 20th century, the mortality rate in the South was much higher than that in other regions in America.

Yet, since the turn of the century,



A 1982 view: Shining corporate towers dominate downtown Houston.

regional mortality rates have been converging. Air conditioning is one of the reasons why. It has reduced infant mortality, prolonged the lives of thousands of patients suffering from heart disease and respiratory disorders, increased the reliability and sophistication of microsurgery, and aided the production of modern drugs such as penicillin.

Climate control has had an even greater impact on migration. It is no coincidence that, during the 1950s, as air conditioning first invaded the South, the region's net out-migration was much smaller than it had been during the previous four decades, when millions of blacks moved North seeking jobs and freedom from Jim Crow. During the 1960s, for the first time since the Civil War, the South actually experienced more *in*-migration than *out*-migration. While the net gain was modest—fewer than 500,000 people—its very existence

was startling.

The 1960s were, of course, only the beginning. Between 1970 and 1978, seven million people migrated to the South, twice the number that left the region. By the end of the decade, the Sun Belt boom was in full swing.

The Northern migration of the last two decades has infused the South with new ideas and new manners, ending the region's long-standing cultural isolation. And with this increasing diversity, the legacy of the old Confederacy has begun to fade.

The changes wrought in the South by the air conditioner helped, of course, to speed the demographic transformation. By making life in the factory more bearable, climate control nurtured the expansion of industry in the New South. The number of Southerners employed in manufacturing exceeded those employed in agriculture for the first time in 1958. By 1980, factory workers outnumbered farm labor-

ers by a margin of 3 to 1.

With or without air conditioning, the South was ripe for industrial development. But, as Clayton Reed of the *St. Petersburg Times* pointed out in 1978, it would be impossible to "conceive of a Walt Disney World in the 95-degree summers of central Florida without its air-conditioned hotels, attractions, and shops," or "of Honeywell or Sperry or anyone else opening a big plant where their workers would have to spend much of their time mopping brows and cursing mosquitoes."

Indirectly, therefore, the air conditioner has spurred the increase in the South's per capita income—from 52 percent of the national average in 1930 to almost 90 percent today. The New South is slowly rising from the "generations of scarcity and want" that historian C. Vann Woodward once called "one of the distinctive historical experiences of the Southern people."

Leaving the Farm

Since 1940, the South has also been the most rapidly urbanizing section of the country. The proportion of Southerners living in urban areas has nearly doubled, from 36.7 percent to almost 70 percent today. Although its population still remains the most "rural" in the United States, the South and the rest of the nation are no longer that far apart.

How much of this recent urbanization can be attributed to air conditioning is impossible to say. But according to journalist Wade Greene, "Two of the country's fastest-growing cities, Houston and Dallas, would probably be provincial backwaters today without air conditioning." The same could be said of scores of other fast-growing Southern cities, including Jacksonville, Charlotte, Birmingham,

and Baton Rouge.

In the South, urbanization and industrialization are matters of no small cultural importance. Although sometimes exaggerated, "agrarianism" has been an integral part of traditional Southern culture. In abandoning the open farm for the air-conditioned factory, suburb, and city, Southerners have weakened their old bond with the natural environment.

Turning the Switch

It seems clear that most Southerners have found themselves spending more time in the Great Indoors. For confirmation, one has only to walk down almost any Southern street on a hot summer afternoon, listen to the whir of compressors, and look in vain for open windows or human faces. As Frank Trippett put it in a 1979 *Time* essay, air conditioning has "seduced families into retreating into houses with closed doors and shut windows, reducing the commonality of neighborhood life and all but [making obsolete] the . . . society whose open, casual folkways were an appealing hallmark of a sweatier America."

Of course, among those whom the air conditioning wave has yet to reach, these "folkways" remain. On hot Sunday afternoons, rural blacks, poor whites, migrant laborers, and mountaineers still sit on their front porches, sipping cool drinks, chatting, enduring the discomfort that sends their more affluent compatriots scurrying indoors to turn their switches to Hi Cool.

In many cases, these old-fashioned folk are the only ones left with front porches. To the dismay of many Southerners, air conditioning has, in effect, done away with a rich array of vernacular architecture. Southern houses had once relied on an ingenious marriage of passive cooling and

cross-ventilation to reduce heat and humidity. "You look at what the Crackers were doing 75 or 100 years ago," Florida architect Dwight Holmes recently remarked, ". . . and when you analyze it, they had the right answers."

The catalogue of structural innovations is long and varied: high ceilings, thin walls, long breezeways, floors raised three feet off the ground, steeply-pitched roofs vented from top to bottom, open porches, broad eaves that blocked the slanting sun, groves of shade trees shielding the southern exposure, houses situated to capture prevailing breezes, and so on.

Historically, these designs created a milieu that is distinctively Southern. In contrast, the modern, air-conditioned tract houses that have sprung up as replacements outside Macon and Houston and Charleston—with their low ceilings, small windows, and compact floor plans—are now endemic from Maine to California.

During the 1950s and 1960s, social science researchers hailed these new air-conditioned homes as the savior of the American family. A 1962 report on the effects of air conditioning on families in Austin, Texas, and Levittown, Pennsylvania, was typical: "Hot meals—40 percent more nutritious—enthusiastically eaten despite soaring outdoor temperatures. A \$5.80 average weekly saving on outside entertainment. Laundry time cut in half; house-cleaning time cut by one-third."

In retrospect, such expansive claims seem misleading, especially with regard to the Southern family.

Air-conditioned living may have made many individual family members happier, but it does not necessarily follow that it strengthened family ties. With its emphasis on kinship and family history, the Southern family has long been known for its "semi-extended" nature. During the long, hot summers, the withdrawal of husbands, wives, and children into the seclusion of their air-conditioned homes, as more than one observer has noted, has weakened the leisurely old Southern custom of "visiting with" nearby grandparents, uncles, aunts, and other relatives.

A more noticeable effect of air-conditioned architecture has been its assault on the South's strong "sense of place." Epitomized by the fictional inhabitants of Faulkner's Yoknapatawpha County, Southerners have been rooted to local geography—to a county, town, neighborhood, or homestead. As look-alike chain stores, tract houses, glass-sided skyscrapers, and shopping malls overwhelm the landscape in and around cities and towns, this sense of local identity is bound to fade.

Perhaps, as it has done so often in the past, the Southerner's special devotion to regional and local traditions will ensure the survival of Southern folk culture. But this time it won't be easy: General Electric has proved a more devastating invader than General William Tecumseh Sherman. As long as air conditioning, abetted by immigration, urbanization, and broad technological change, continues to make inroads, the South's distinctive character will continue to diminish, never to rise again.