ON THE MOVE

BY BRUCE C. WEBB

SINCE THE INDUSTRIAL REVOLUTION, AMERICA HAS BEEN A COUNTRY ON THE MOVE. A NATION OF RELATIVELY INDEPENDENT TOWNS SERVING LIMITED AND CONTIGUOUS HINTERLANDS CHANGED IRREVOCABLY INTO A NATION OF INDUSTRIAL CITIES INTEGRATED INTO A NATIONAL ECONOMY. LARGE METROPOLITAN CENTERS EVOLVED INTO INTERCHANGE JUNCTIONS WITHIN AN EVER-EXPANDING TRANSPORTATION WEB THAT MOVED RAW MATERIALS, MANUFACTURED GOODS, AND PEOPLE FROM PLACE TO PLACE. IN A VERY REAL WAY, PHYSICAL LINKAGES TO THE REST OF THE COUNTRY SUBSTANTIATED THE 20TH-CENTURY INDUSTRIAL CITY. WHERE YOU WERE WAS ONLY A TEMPORARY STATE.

Inset above: Superstudio's grid. Background: An aerial station, as envisioned in 1916 by "Biedermann."

VISIONARIES OF THE POST-INDUSTRIAL SOCIETY IMAGINED A WORLDWIDE COMMUNITY WITHOUT PROPINQUITY, AN ELECTRONIC NETWORK OF CONTACT POINTS REPRESENTED, FOR EXAMPLE, BY THE ITALIAN DESIGN GROUP SUPERSTUDIO AS AN ENDLESS COMMUNICATIONS AND SERVICE GRID OF THE NON-PLACE URBAN REALM. THE GRID ITSELF BECAME A METAPHOR FOR MODERNITY, WHETHER IN THE RATIONALIZED GEOMETRIES OF INTERNATIONAL STYLE ARCHITECTURE OR IN THE LINES OF TRANSMISSION AND SERVICE THAT DISTRIBUTED TECHNOLOGICAL ENTITLEMENTS TO HOMES AND BUSINESSES. ELECTRIFICATION BROUGHT ENERGY TO REMOTE LOCATIONS FOR ILLUMINATING, HEATING AND COOLING, AND POWERING ENGINES; ELECTRIC LINES ELIMINATED THE NEED TO WIDELY DISTRIBUTE BULKY FUEL. A SUCCESSION OF COMMUNICATIONS DEVICES — THE TELEGRAPH, TELEPHONE, RADIO, TELEVISION — MADE IT POSSIBLE TO DISSEMINATE VAST AMOUNTS OF INFORMATION AND ENTERTAINMENT WITHOUT ANYONE'S HAVING TO TRAVEL FROM THE RECEIVING END AT HOME BASE. ALMOST ANYTHING THAT COULD BE REDUCED TO BINARY ABSTRACTION — MONEY, FOR EXAMPLE — COULD BE TRANSMITTED ELECTRONICALLY, ELIMINATING THE NEED FOR MANY FACE-TO-FACE ENCOUNTERS. BUT ALAS, NOT EVERYTHING CAN BE E-MAILED. UNTIL SCIENCE CATCHES UP WITH THE BEAM-ME-UP CAPABILITIES OF STAR TREK, HUMAN SOCIETIES MUST STILL MOVE PEOPLE AND GOODS THROUGH PHYSICAL SPACE.

The evolution of transportation stretched and shaped cities. The first settlers of most 18th- and 19th-century American cities arrived by water. Houston was not a seaport city, but open water and access to the world were tantalizingly close. In 1914 a massive dredging operation created a channel linking the inland city to the Gulf 50 miles away, a channel that was enlarged in 1935 and again in 1963.

In the 19th century, transportation by water began to share primacy with the railroads, and cities soon found themselves weaving obtrusive rail lines into the city fabric. The railroad station introduced a new kind of civic space and a new building type: Stations exuded a pride of place, rivaling the city hall in a traveler's memory. Railroads were essential to the settlement of Texas, with its far-flung destinations, and Houston's dependence on them was celebrated in the city's crest, where a locomotive is pictured as the most prominent element.

But in a process of natural selection railroads lost out to the road, trucks became the prime movers of goods (trucks now move more than 67 percent of all freight), and passenger travel dwindled to a trickle. Industrial trucking now links the port of Houston, the city's two airports, and the mainline railroads into an intricate mega-system.

America's romance with the trip and the almost mythical places celebrating the adventure of travel is hard to evoke in Houston. Despite the Port of Houston's ranking as the third-largest seaport in the country, Houston thinks of itself mainly as inland, and the port hasn't lodged itself in the consciousness of the city. Ships seem to sneak in and out along the artificial waterway, and the port itself, though a fascinating, constructivist landscape of powerful machines, is as formidable as a military base.

Houston's single extant station from the heydays of the railroad was absorbed into the new downtown baseball stadium like an anchoring rock rooting the stadium in time. Passengers seeking a rail trip today are directed to Amtrak's tiny, inauspicious concrete-block building on Washington Avenue north of downtown, which serves the purpose of the train trip but fails to evoke its romance.

Little of the sense of a genius loci that gave charm and character to railroad stations entered into the design of airports, whose diagrammatic formulations, streamlining, and sterile neutrality seem to belong more to the airplane nation than to any particular geographic locale. The operational requirements of an airport put them at a considerable distance from anything else, and arriving at one is arriving at a faux destination. Still, the transience of the airport embodies a reductive form of contemporary urbanism, where 24-hour rush-hour crowds move purposefully in mall-like settings of shops and restaurants. And at the airport hotel, that most non-place activity of the business class — the airport meeting — can be held without anyone ever setting a foot outdoors.

Today we contemplate our transportation systems as potential Trojan horses. The sheer magnitude of trains, planes, ships, and highway trucks define another dimension of experience and power. With morbid fascination and fear, we devour new reports of train derailments, airplane crashes, and accidents involving 40-ton 18-wheeler tractor-trailers. That fascination and fear amplified our psychological response to the terrorist attacks on the World Trade Center and Pentagon. If a plane could turn into a missile, what seemingly benign cargo carrier might next be turned into a weapon? Can we trust tanker cars? Trucks? Ships?

Certainly we don't trust planes anymore. Starting long before 9/11, but with more urgency since then, the airport has changed from a terminal similar to the railroad station into the building as initiation ritual. A maze of security measures, customs screenings, and baggage checks act as technological stations of the cross that simultaneously allay and provoke fear.

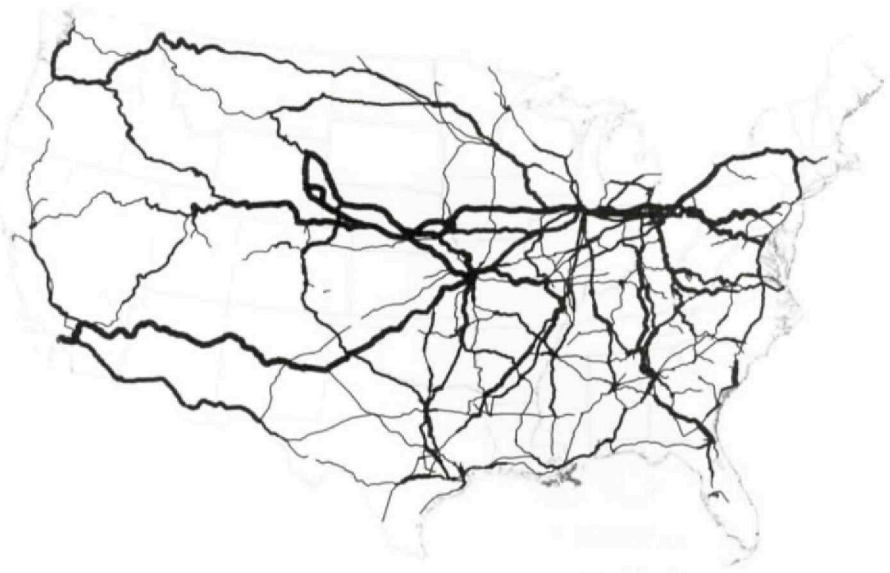
Mostly, this massive movement of people and materials by water, road, rail, and air goes unnoticed unless something goes wrong — usually something big, something catastrophic. Or until the system presses itself into our consciousness — for example, when a half-mile long train at an on-grade crossing keeps us from getting to where we want to go. This issue of *Cite* looks at the city literally on the move at the beginning of the third millennium — and at how the design of the city accommodates its biggest and most demanding users. ■

PLANES

Can you fly to any airport in the world from Houston? Of course you can — but whether you can fly to a foreign city directly, without a layover, often depends on whether the route belongs to Continental Airlines, which uses George Bush Intercontinental Airport as a hub. These maps show the destinations of daily non-stop flights from both Hobby and Intercontinental in November 2002.

Information courtesy of Houston Airport Operations

MAPPING THE CONNECTIONS :



TRAINS

Since the days of the frontier, most American railroad traffic has run east-west. Much of that traffic still goes through Chicago, where western transcontinental lines connect to lines serving the population centers of the northeast. The coal fields of Wyoming, which fuel most of the Midwest's power plants, are another railroad center. Houston looks insignificant by comparison; Dallas has more traffic and the busiest line in Texas goes through Amarillo. But much of that traffic is simply passing through. Houston originates and terminates as much railroad traffic as Texas' other metropolitan areas combined; twenty percent of freight tonnage originating in the state is Houston chemicals.

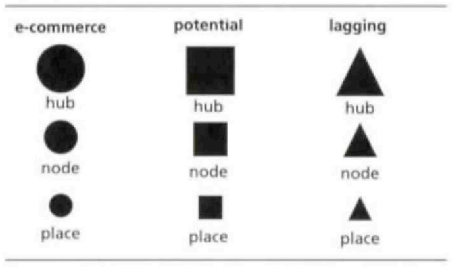
MAp courtesy of the Bureau of Transportation Statistics, U.S. Department of Transportation

THE INTERNET

In the early years of the digital era, maps of the Internet often showed U.S. cities linked by "trunk lines" — high-speed data connections linking a handful of universities and research facilities (including Houston's Rice University). How fast your data traveled depended on how quickly you could get it to a trunk line. In the new fiber-optic age, though, everything is connected to everything else; your house may be directly connected to a high-speed line. Many people who map the Internet no longer find old-fashioned geography relevant.

But geographer Matthew Zook of the University of Kentucky argues that location still matters to Internet businesses. In "Hubs, Nodes and Bypassed Places" (published in *Tijdschrift voor economische en sociale geografie*, January 2003), he shows that companies using the Internet to make money are not evenly distributed across the country but tend to concentrate in the cities where tech workers are plentiful. Even after the bursting of the dot-com bubble and the e-commerce shift to "bricks and mortar" companies, cities such as Seattle retain their early lead in the field, and cities in the South and Midwest lag behind. In Zook's classification, Houston receives the lowest ranking: a "lagging place." Petroleum may flow freely in and out of this city, but electronic money goes elsewhere.

Map courtesy of Matthew Zook

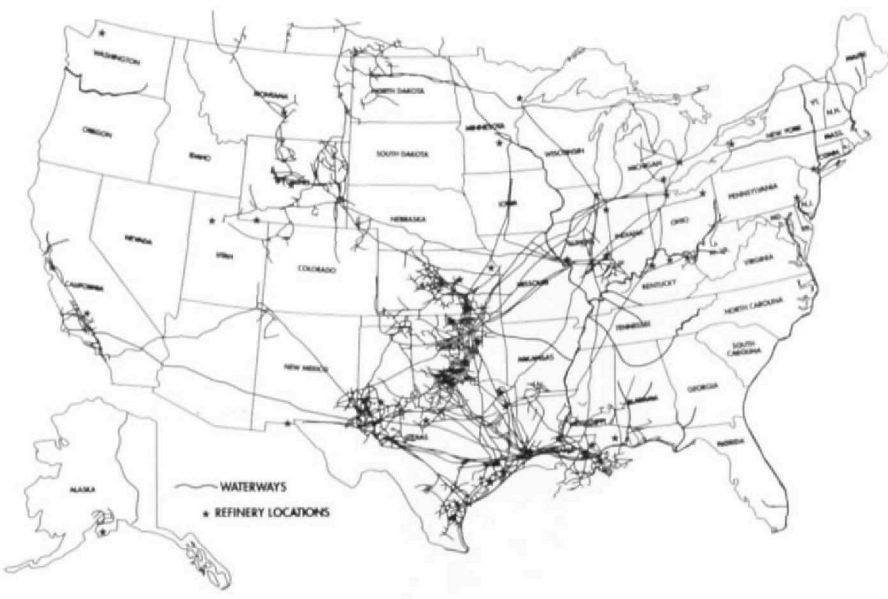


SHIPS

The Port of Houston processes nearly 200 million short tons of cargo per year — more than any other port in the U.S. Both the top import commodity and the top export commodity are (you guessed it) petroleum and petroleum byproducts, so it's not surprising to see oil countries heavily represented on this map of regularly scheduled shipping service from the Port of Houston. On the map at right, a dot represents a city with one port. Numbers indicate mark cities with more than one port.

Map data courtesy the Port of Houston

HOW HOUSTON REACHES THE REST OF THE WORLD



PIPELINES

More than 12.9 billion barrels of petroleum travel through interstate pipelines each year, and a high percentage of those trips either begin or end at Houston refineries. Above, the map on the left shows U.S. pipelines for crude oil — that is, for stuff headed from the oilfields or coastal shipping terminals to the refineries. The map on the right shows pipelines for refined petroleum products — the gasoline, heating oil and jet fuel that's headed from the refineries to distribution centers, and from there, eventually, to their end users.

Maps courtesy the Association of Oil Pipe Lines