

Iceland: The western coast, settled by Vikings who kidnapped their wives during raids on Ireland, is distinct from the other side of the island, where the first women came from Norway.

Icelanders also present a convenient target for research. The public health system makes it simple to get medical data, and public opinion supports the use of it. A Gallup poll commissioned by DeCode showed that 63% of Icelanders favor DeCode's request for a national monopoly over the data, which the parliament will vote on in October. "The Icelander's attitude is, if my sickness can do something good for curing other people, then it's a good thing," says Matthias Johannessen, editor of *Morgunbladid*, Iceland's largest daily.

There are competing populations in the DNA race. Millennium Pharmaceuticals and Myriad Genetics, for instance, extract DNA samples from inbred societies in Finland and Costa Rica, and from Utah's Mormons. Yet of those groups, only the Mormons have kept meticulous demographic records—and those for only a century and a half.

U.S. venture capitalists bought Stefansson's argument. So far, they have put up \$12 million.

DeCode has used the money to assemble a genealogy database of 600,000 Icelanders dating back to the year 900. To protect people's privacy, it invited the government's Data Protection Commission to encrypt the names.

DeCode is also working with physicians to sign up patients. For example, to find the gene for familial essential tremor, the inherited tendency toward uncontrollable shaking, John Benedict, a participating neurologist, collected blood from 116 patients and 400 of their relatives. Before turning the samples over to DeCode, a Commission representative coded the tubes to match the codes in the encrypted genealogy database.

Using automated sequencing machines from Perkin-Elmer, DeCode sequenced the DNA from the healthy and the sick to locate the gene. Says Stefansson, "It took six months, whereas it would take two years in a nonhomogeneous population." ■

AT&T is buying TCI to create a telecom for the 21st century. To see how it could work, they need only check out Britain's NTL.

Telecom-to-order

By Caroline Waxler

THE DAY THE NEWS BROKE that AT&T was buying TCI, Barclay Knapp was lunching on grilled chicken and tomato ravioli at New York's Hotel Inter-Continental. Sharing the meal were high-powered money managers representing the Bass brothers, GE Capital and Neuberger & Berman.

The money managers strained to hear every word that Knapp said over lunch because Knapp, chief executive of U.K. cable and telephone company NTL, had already taken his company where AT&T/TCI were going.

"NTL is already a successful combination of cable and telephony," explains investor Salvatore Muoio, of S. Muoio & Co. "What AT&T did today just validates NTL's strategy." Compared with companies like AT&T, WorldCom and Cable & Wireless Communications, NTL, Inc. is a flea among elephants—but a nimble flea. With expected 1998 revenues of just under \$1 billion, it is the third-largest cable company in the U.K., behind Cable & Wireless and Telewest.

What makes NTL unique is that it already bundles telephone service, cable and Internet access into a single service. (It also broadcasts radio, TV and mobile telephone signals via 1,200 transmission towers across the United Kingdom.)

NTL has already installed its cable and telephone systems in more than 950,000 British homes, and has licenses to build in areas with 5 million homes. In February it entered into an agreement to pay \$600 million for Comcast U.K. Last month it agreed to buy two other British cable companies for \$1.54 billion in stock and cash.

NTL combines innovative technology with innovative marketing, offering a wide variety of choices and responding rapidly to customer demands. Its most effective offering is its First

Choice entry package, which offers local and long distance telephone service, including call-waiting and call-return, plus seven cable television stations and five network TV stations for \$15 a month. Its major competitor, British Telecom, charges as much for telephony alone. Rupert Murdoch's BSkyB satellite service offers a basic 27-channel package for about \$19, but no telephone service. Other U.K. cable providers, like Cable & Wireless and Telewest, copy NTL's strategy, but with fewer choices for consumers.

Lured by that bargain package, many NTL customers quickly sign up for add-ons. Additional channels are nearly \$7 more per group. If an NTL customer wants Internet access, he or she pays \$16 more per month for unlimited access through a joint venture with Virgin Group's new Internet service company, Virgin Net. Soon NTL will even offer Internet access via television through its recently purchased NetChannel U.K.

NTL's service is delivered over a national and local telecommunications network that it built for \$1.4 billion. This new fiber network, built from glass filament, carries so much bandwidth that NTL can offer a wide variety of services over a single channel.

Alan Snyder, a veteran telecom investor who heads up Snyder Capital Management, is a great admirer of NTL. He explains: "In the U.S. folks laid down networks for 35 to 40 channels, then had to keep upgrading them. NTL learned from everyone's mistakes. From day one they decided to build a system for anything that might come along in the next ten years—It's like, 'Build it, and we'll find stuff to put over it.'"

Owning both the network and the so-called last mile into the end customer's house gives NTL great packag-

ing and pricing flexibility. Indeed, it is to attain this so-called last-mile access that AT&T is willing to pay \$48 billion for John Malone's TCI.

NTL's low-cost multichoice strategy is helping it build market share: The company has a 40% penetration rate in most of its licensed areas—almost twice that of any competitor. Its churn rate is only 12% compared to 25% for rivals like Telewest.

The brains behind this British phenomenon are a pair of Americans, George Blumenthal, 54, and Knapp, 41. Previously, Knapp, Blumenthal and third partner William Ginsberg ran Cellular Communications Inc., the U.S.' first publicly traded cellular company. Blumenthal inherited a NYSE seat from his father and got into cellular telephony as an investor in Cellular Communications. Blumenthal met Knapp in 1982, when Knapp, trained initially as a mathematician, was studying at Harvard Business School. Intrigued with the potential of cellular telephony, Knapp signed on—first for a summer, then for good.

The company's operations were in Ohio. At \$2,000 each in 1987, cellular phones were priced out of most of the market, but Knapp came up with the idea of renting the phones to create a customer base. In a five-year transaction, culminating in 1996, Cellular Communications was sold to what is now Airtouch, for \$2.5 billion.

From the sale, Knapp and Blumenthal held back several fledgling businesses. These assets, including what is now NTL, have become the basis for three Nasdaq issues. Cellular Communications International, run by Ginsberg, owns a stake in one of the two cellular licenses for Italy. CoreComm, run by Knapp, has a 50% market share of the cellular telephone market in Puerto Rico and the Virgin Islands, and is making inroads in the Ohio telecom market.

Of the three, NTL is the star performer. From the beginning it has been a voracious consumer of capital—all that fiber doesn't come cheap. It has already borrowed \$4 billion, and its cash flow barely covers interest

costs, says Aryeh Bourkoff, high-yield analyst at CIBC Oppenheimer. But this is to be expected of a company that has deliberately expanded ahead of its market and installed plenty of excess capacity. Understanding this, some smart investors have come aboard. Capital Group owns 4.5% and Baron Capital owns 8%. Traded on the Nasdaq, what is now known as NTL was spun off to the public in 1991. Since then, its stock has gone from \$3 to a recent \$56 a share.

Meanwhile, as if not satisfied with giving British Telecom and Rupert Murdoch a hard time in the U.K., CoreComm, a Blumenthal/Knapp outfit, is crowding Ameritech in its midwestern U.S. telephone markets by using its small Ohio network to offer consumers a wide choice of services à la NTL. "We've got 3 price points and 12 variations for each. That's 3 to the 12th power—thousands of combinations," says Knapp.

Out of such marketing math may well come the model of the future of the telecom business. ■

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NTL's Blumenthal and Knapp
AT&T and TCI should pay attention.

