TABLE 2
Lay-offs In The Telecom Sector Since Jan. 1, 2001 (Firms Which Have Laid Off 5,000 Or More)

Company	Job Cuts	Function
Lucent Technologies	44,910	Network equipment
China Unicom	34,478	Telecom operator
Motorola	32,000	Mobile phone equipment
Nortel Networks	30,000	Network equipment
Alcatel	25,300	Network and mobile phone equipment
Ericsson	22,000	Mobile phone equipment
Solectron	20,700	Contract network equipment
JDS Uniphase	16,000	Optical network components
Philips	11,000	Mobile phone equipment
Siemens	9,700	Mobile phone and network equipment
ADC	9,500	Broadbank equipment
Cisco Systems	8,500	Network equipment
Marconi	7,000	Network equipment
WorldCom Group	6,832	Alternative telecom operator
Corning	6,800	Fiber-optic components
Agere Systems	6,000	Network components
British Telecom	6,000	Telecom operator
Cable & Wireless	5,500	Network operator
NTL	5,000	Cable operator

Source: London *Financial Times,* Sept. 7, 2001.

ally—for comparison, an amount that far exceeds the $850 billion losses in Asian stock markets during the 1997-98 "Asian financial crisis."

A large telecom operator has gone bust every six days, on average, for the past six months. Spending on the telecom sector in the United States and Europe amounted to $4 trillion between 1997 and 2001. More than $1.8 trillion was lent to the telecom sector by banks, bond markets, and private equity issuers during 1996-2001.

The telecom companies shown in **Table 2** have laid off 5,000 or more workers since Jan. 1, 2001, as compiled by the London *Financial Times*—totalling over 300,000 workers in eight months.

The telecom industry was overbuilt in "Al Gore" lunatic fashion, based on the belief that an explosive expansion of the Internet (perhaps by the 60% of the population in Asia who make less than $2 day becoming users) would create a virtually infinite demand for telecom capacity. In fact, only 1-2% of all the fiber-optic cable laid in the United States and Europe is "lit," or turned on; and, of the capacity turned on, only one-tenth of that capacity is actually used. Thus, only one-one-thousandth of the total fiber-optic capacity in the United States and Europe has ever been utilized.

Test New Damming Method On Ohio River

by Marcia Merry Baker and Walter Merry

The Army Corps of Engineers is in the process of creating an engineering first, for a new dam construction method, in a dam-replacement project on the Monongahela River, just upstream from Pittsburgh.

Internationally, we face economic depression, made worse by chaos ensuing from the Sept. 11 strategic operations hit on the United States. Yet now is the right time to be thinking ahead to how infrastructure advancement could proceed—especially by leap-frogging over outmoded technologies, with new, effort-saving methods. Many of the dams on U.S. river navigation systems are nearing 100 years old, and way past due for replacement. For these, and similar locations in other nations, the Engineering Corps project could be a major advance.

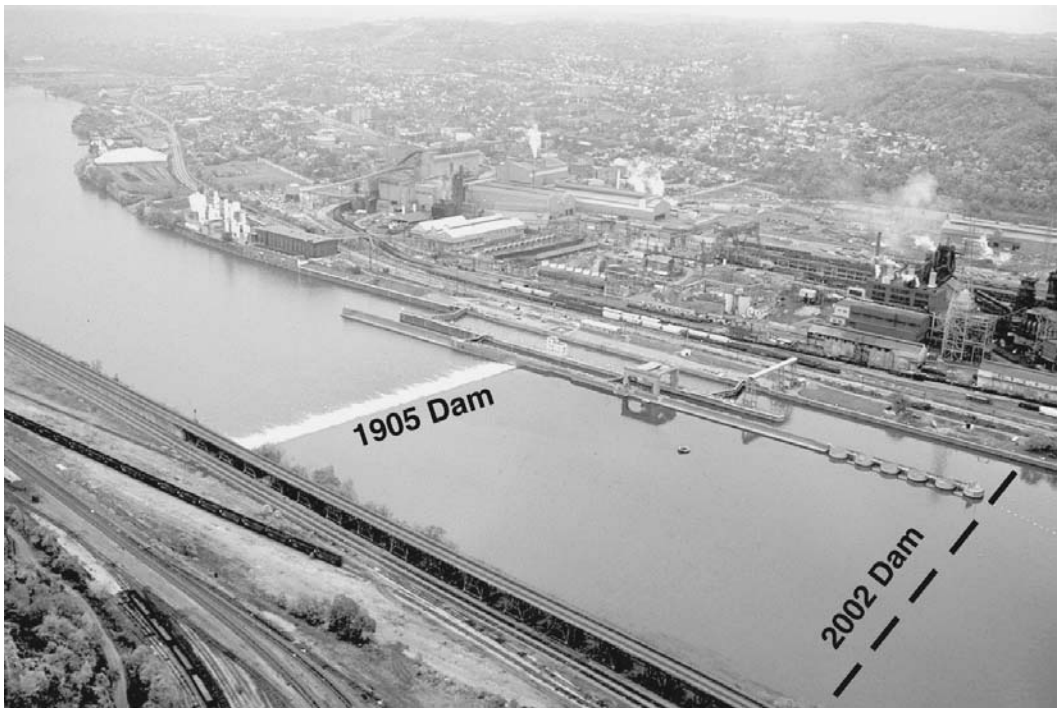
The simple approach being demonstrated on the "Mon," is to build the dam in advance, elsewhere, in parts, then float them to the final location, and join them together at the permanent installation site. A nice idea, but the trick is the execution of it.

The test project is to replace the 1905 dam at the Locks and Dam No. 2 of the Monongahela River, at Braddock, just upstream from where the Mon, rising from the South, joins the Allegheny, rising from the Northeast, to form the Ohio River at the "Point" in Pittsburgh. On July 26, the first of two sections for the new dam was floated 27 miles from its construction site, near to where it will be joined by the second section early next year, for final installation in 2002 as a new dam. No coffers, no diversions, and only minimal down-time for shipping in the Ohio-Monongahela system will be required. This means vast savings in labor, funds, and resources.

The photograph shows the new dam site schematically (not exactly), and the existing old dam. The features shown include a 1953 lockmaster tower (white), between the two locks; and the prominent Edgar Thomson Steel Works.

Floating Into Place

The first of two modular sections, "Braddock Dam Segment No. 1," for the new dam at Locks and Dam 2 on the Mon, was constructed in a joint venture by the Corps, J.A. Jones Construction Co., and Traylor Brothers Inc., at Leetsdale, some 26 miles down river from its intended site. "No. 1 Segment" is made of concrete, with an airtight central



The Army Corps of Engineers is using new "dam replacement" technology on the Monongahela River, near Pittsburgh, Pennsylvania. Shown is the view from downstream of Lock and Dam No. 2 at Braddock.

chamber, making it buoyant for floating into position. It weighs 22 million pounds, is 333 feet long, and is just wide enough to slip (with 18 inches clearance) through the intervening locks on the Ohio and Mon.

Soon after 3:00 a.m. on July 26, the hulk was winched out of its construction pit, and launched for its upriver journey, propelled by two towboats, at a top speed of under three miles per hour. At 9:30 p.m. that night, "Segment No. 1" was docked at Duquesne, on the Mon, where it will have three months of final fitting. "No. 1" had a draft of 11 feet, which meant at one point on its 27-mile journey, its bottom came very close to the river bottom, at West Homestead. The mammoth structure is 55 feet high. But the trip was a success.

Its mate, "Braddock Dam Segment No. 2," which will be a smaller slab, is scheduled to be completed this fall, and will float upriver early in 2002. Later that year, both segments will be put into final position, filled with concrete, and completed.

The Army Corps Commander for operations, the day the first section was launched, was Col. Raymond Scrocoo, of the Pittsburgh Division. "This is the first time anything like this has ever been done. It's a great day to be an engineer," he told the *Pittsburgh Tribune-Review* on July 27. The Corps engineers, towboat crews, lockmasters, and builders involved are justly proud of their new experiment. So, too, are the locals, who have watched the Pittsburgh-area steel center decay, and now see technology at work again. They flocked to the riverbanks to watch the first "floating section" pass by on July 26.

The Mon and Ohio Navigation Systems

Coal accounts for most of the tonnage that moves on the Monongahela River. The most common types are steam plant coal and metallurgical coal, from mines in Greene County, Pennsylvania, and in West Virginia. Although most of the coal is used in the United States, a sizable volume moves to foreign destinations. The Army Corps writes:

"The present Mon navigation system has nine locks and dams of several sizes and types constructed by the Corps of Engineers between 1902 and 1967. These locks allow boats to travel in a series of steps down the 147-foot difference in pool elevation from Fairmont [W.Va., where navigation ends] to Pittsburgh. . . . The locks and dams on the Mon enable it to carry as much tonnage as the flat lowland rivers of Europe, like the Rhine and the Thames."

The Ohio River itself has 20 lock and dam installations on its 981-mile course from Pittsburgh to Cairo, Illinois, where it joins the Mississippi River. The three locks and dams immediately south of Pittsburgh are old and outdated: Emsworth (1921), Dashields (1929), and Montgomery Island (1936). The other 17 main locks on the Ohio were built in the 1950s or since, and they are all 1,200 feet in length.

Because the older three locks are only 600 feet long, barge tows have to be broken into smaller segments, and reassembled, a procedure called "double-locking." This is time-consuming and expensive. The aging locks also undergo more outages for repairs. In 1999, the first three, aged Pittsburgh locks had 16 days' total downtime; in contrast, the next three, newer locks downstream had only four days' downtime.