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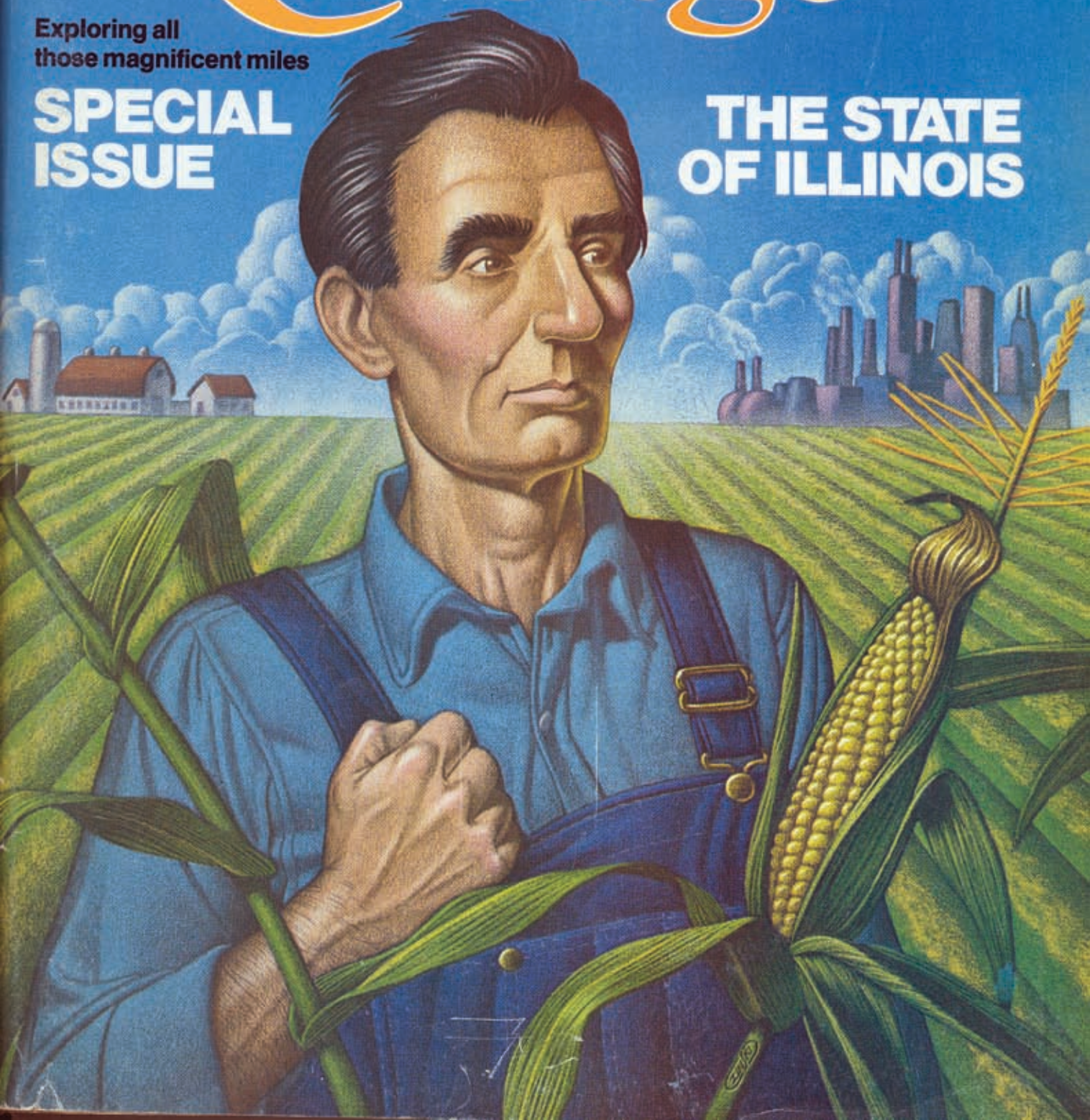
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Is there light at the end of Deep Tunnel?

Unless the flood of controversy recedes, we may never know.

Deep Tunnel. A plan for 131 miles of pipeline and reservoirs 150 feet below the surface of Cook County. It has been called a boondoggle by Senator Charles Percy and a boon by its builders, the Metropolitan Sanitary District. The MSD claims that the Tunnel is the only solution to the area's flood troubles; Percy charges that it is a multi-billion dollar mistake and has effectively cut off funds for its completion. The war of words has even made it onto *60 Minutes*. But what lies behind the controversy? What would the Tunnel do? And are there any alternatives to its construction?

Deep Tunnel, or the Tunnel and Reservoir Plan (TARP), would create an underground cavern for storing sewage and storm water until it can be pumped to the surface in drier weather for treatment. It is a joint project of Chicago and 53 contiguous municipalities encompassing 375 square miles in Cook County, about half the area for which the MSD is responsible.

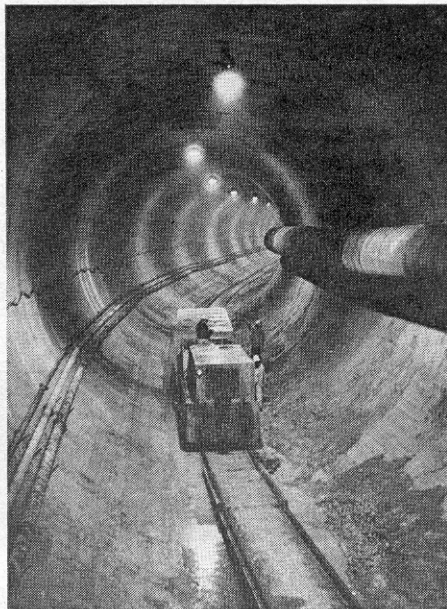
All 54 municipalities are linked by old sewers, most of which carry human and industrial waste as well as storm water and are limited by the total water-flow capacity of the Des Plaines River and the Chicago Sanitary and Ship Canal, as measured at their merger point below Lockport.

Because our topography is flat, drainage is sluggish at best; three-tenths of an inch of rainfall at moderate intensity (figuring one-third of this as runoff) can overload the existing system. Phase I, the antipollution segment of TARP, will accommodate 6,288 acre-feet of water.

That capacity is more than 80 percent of the total volume of excess (or flood-level) runoff that occurs about every fourth day. To minimize basement flooding during moderate storms, MSD now releases untreated sewage into the Sanitary and Ship Canal. To minimize flooding during intense storms, the Wilmette, Loop, and/or Calumet locks are also opened, and untreated sewage and storm water backflow into Lake Michigan, usually resulting in beach closings.

That violates both Federal and state clean-water laws; but the offending municipalities are temporarily allowed to pollute while problems are being corrected.

Phase II, the antiflooding segment, provides the excess storage capacity to permit the entire system to contain the waters of a "ten-year storm" (a rainfall of such intensity



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that it is expected to occur only once every ten years). That's an ultimate storage capacity of about six inches of water across the 375-square-mile region.

Critics of TARP claim that designing for a ten-year storm is wasteful, that five-year storms are the models for planning elsewhere. But this area had three "five-year" storms and two other intense storms in 1981 alone, and we were awash with the most severe flooding in decades. The flooding was worst in the northern suburbs of Skokie, Wilmette, Evanston, and Kenilworth, where from 26 to 35 percent of all basements are susceptible to sewage backups; and south, along the Calumet. Across the TARP map, about 350,000 basements, mostly in single-family dwellings, are vulnerable. That takes in about 1.6 million residents, according to Army Corps of Engineers estimates, not all of whom are affected by any given storm or in any given year.

More than half of the Phase I segment of tunneling is nearing completion. Percy has criticized the MSD because exact figures on each segment's effect are not available. The MSD responds that both storm intensity and storm center are determining factors, and that predicting the effects of a future storm is like pinpointing the location of tomorrow's worst traffic jam.

More to the point, according to the MSD, is that TARP was conceived as a whole. It

was never intended to be justified in segments, relating to contracts let, or even in Phases I and II. In fact, the phases were actually restructurings of the original plan to accommodate the Federal government: Because the Environmental Protection Agency (EPA) had been directed to fund antipollution efforts only—not flood control—the plan was broken down into segments to conform to that directive.

Of the total of 131 miles of tunnels projected, the segments now under contract are the only ones that can be built with EPA funds allocated to date. Yet Percy suggests that funding problems go beyond finding additional sources of money. He has claimed that "... problems have plagued TARP from the start. Although construction began in 1975, only 37 percent of the contracts have been awarded. The project's estimated cost rose from an original \$1.2 billion figure to \$7.8 billion in 1977, and current projections indicate that the project may cost well over \$11 billion by the time it is completed."

But the first figure Percy cites was for only the first half of Phase I, and in 1974 dollars; the \$11 billion figure is from the General Accounting Office (GAO) and includes projected inflation, plus interest on "sunk" costs (contracts already awarded), plus maintenance expenses on the whole project—for the next 50 years. The MSD's own all-inclusive figure at the time (including inflation) was \$4.5 billion.

Percy also has mentioned a GAO report that, he says, "concludes that massive projects such as TARP are simply not worth the cost. In the absence of large-scale solutions, the study describes small-scale technologies which are available as alternatives..."

But in the professional opinions of all parties to the design of TARP and of visiting technicians, TARP is a large-scale solution, and a good one. The motives for its proposed cancellation seem to lie in politics.

The Deep Tunnel plan, forerunner of the now-segmented TARP, began to take shape after the flooding of the Chicago Loop in 1954. When environmental protection became an issue in the early seventies, only Chicago had a plan to deal with it. The Chicago plan was seen as a prototype for the nation, and every aspect was reviewed and studied by all participants: MSD, the Army Corps of Engineers, Harza Engineering Company of Chicago (design and, later, supervising

engineers), the EPA, and the Illinois EPA. Studies have also been done by engineers for Rochester, New York, and San Francisco, both of which cities are engaged in TARP-like projects.

Percy's call for additional analysis is puzzling because of these other studies and because an operating model exists today in the MSD-built O'Hare/Des Plaines sanitation and flood-control facility. Percy claims the O'Hare facility is not part of TARP and is substantially different. True, O'Hare doesn't share the TARP title: It was committed ahead of the main TARP project without Federal funds. But the concept, tunnels, and pumps are similar in everything but scale. And it's working.

Because of recently changed funding rules, after 1984 the Federal government will fund projects at 55 percent instead of the current 75 percent. Consequently, the delays created by Percy could cost the residents of the area an additional 20 percent if the impounded monies are not released by October first of this year. No funds for TARP are in the Reagan budget for fiscal 1983. Worse, says the MSD, special equipment and skilled workers are leaving the area because of TARP's uncertain future. Percy's delaying tactics are even less understandable because he *does* want to construct the North Branch portion of Phase I to serve the north suburbs, although he would further delay and even cancel the large sections underlying the Des Plaines River and the Calumet network. Percy does not support Phase II at all.

According to the MSD, the contracted segments are actually *ahead* of schedule and *under* budget. The apparent discrepancies arose when original contract bids rose faster than the basic inflation rate; but these costs were offset when tunneling "moles" worked far faster and more efficiently than anticipated.

The Federal government in general, the Reagan administration in particular, and Percy as a politician all have separate needs which have coincided to delay TARP and could kill the project altogether. Federal agencies have been under pressure in the past to limit funding of local sanitation and flood-control projects. Reagan is trying to cut his deficit and TARP is an easy mark, "saving" \$900 million. By calling for investigations and making allegations of waste and mismanagement, Percy can come off as a crusader against fraud, a Washington senator who cares about his home turf.

Since the 1981 floods, Percy has sent letters to flood victims who have petitioned about the flooding. His letter of March 11, 1982 says in part: "The Metcalf & Eddy [Engineers] studies confirm what the GAO concluded in its 1979 reports on TARP: Innovative, decentralized flood control techniques can be just as effective, and far less expensive,

than the massive, costly TARP approach."

That's not what the studies say.

The overall TARP plan requires upgrading of local sewers in most of the 54 municipalities. Many must upgrade whether or not TARP goes through, and most of those are waiting because they see little sense in acting until there's some place to dump the water (the reservoir function of TARP). Needed upgrading was always part of the overall Deep Tunnel plan. It was not expressed in segmented TARP prices, but it was always understood, and the Federal government originally expected to pay much of the cost.

Percy claims that upgrading will replace TARP. The small-scale technologies he mentions include under-street storm-water detention tanks and inlet restrictors (collars that slow the entry of water into street drains). These are merely options examined by M&E when consulting on "supplemental facilities" for Niles and Morton Grove, though, not recommendations.

The M&E reports to which Percy refers state that new sewers, in combination with other types of relief, will "alleviate inadequate sewer capacity within the combined sewer system . . . (and) *in conjunction with TARP* would assure compliance with Illinois Pollution Control Board Regulations for water pollution. . . . However the entire plan must be implemented within each area to assure maximum benefits. . . . *The problems within the combined sewer areas are widespread and cannot be solved by one or two simple relief measures.*" (Emphases added.)

In an April 27, 1982 letter to all 54 MSD-area mayors, Percy states: "... the Hydro-Brake system described on *60 Minutes* will effectively *eliminate* [sic] basement flooding and reduce waterway pollution."

Not true, according to Hydro International Engineering and Planning, Inc. (HIE), sister firm to Hydro-Brake's manufacturer. In a February 22, 1982 letter to MSD, William C. Pisano, HIE's director, uses only the word "mitigate"—never "eliminate."

Pisano continues: "It's improbable that those reductions in overflows/pollutant loadings attributable to implementation of 'inlet control' methods will in fact be sufficient to cause those (state pollution) standards to be met. It is assumed that TARP will substantially meet this requirement. . . . HIE has felt (and should have stated so in the past) that 'inlet control' (including local sewer positive relief enhancement) . . . can be an alternative to the TARP concept in only those communities for whom the present TARP scheme offers no potential benefit of outlet hydraulic improvement. It may turn out that the number of communities falling into this category could be surprisingly few."

Pisano adds: "... 'inlet control' . . . as a total, separable alternative to TARP could be for a given community more expensive than a

solution entailing . . . (and) taking advantage of outlet hydraulic improvement provided by TARP. It may turn out that 'inlet control' . . . would not be cost-effective by itself for many communities. . . . (This) can only be resolved on a case-by-case basis."

To be fair, the Hydro-Brake system is operating in Portland, Maine; it's the manufacturer's headquarters, a town of 60,000 with an unlimited storm outlet—the Atlantic Ocean. Only if Lake Michigan is considered permanently dumpable is there the remotest similarity. The net result of Percy's policy could be permanent backflow into the lake. That possibility is played down by Percy's staff, who say that backflow is only a small part of the lake's problems, which include pollution from other cities, acid rain, and agricultural pollution.

Meanwhile, charges of waste and mismanagement in TARP's development have become part of a media cycle with little substantiation of facts. The *Tribune* and the Better Government Association have quoted Percy, and Percy has quoted the BGA and the *Tribune*, while misquoting engineering reports. The *Tribune* has even quoted itself. It seems as if once the project was labeled a boondoggle, the label stuck without anyone's offering proof of the charge.

A *Tribune* editorial of February 21, 1978 states: "One of the fears is their [the tunnels'] leaking human waste into the area's supplies of drinking water." That "fear," which the EPA itself doesn't share, according to the GAO Report, became the *Tribune's* basis for its April 4 editorial comment that "[TARP] threatens to do irreparable damage to the environment and pollute. . . ." And in a July 23, 1981 editorial: "A solution must be found."

References to those unsubstantiated and unqualified opinions are a mainstay of the Percy bibliography. Percy's staff and materials refer regularly to the *Tribune's* "exposé" of TARP of February 20, 1978: Campaign contributions in cash and dinner tickets to Richard J. Daley, Michael Bilandic, and others, including \$1,400 to MSD president Nicholas Melas's campaign, totaled about \$50,000 over several years from half a dozen or so TARP contractors. Hardly news in Chicago.

Similarly, Percy quotes or refers to the *Reader's Digest* of October 1981, and to the *Washington (DC) Monthly* of November 1979. Both state erroneously that sewage discharges are triggered by a quarter of an inch of rain and that TARP tunnels under construction would provide no relief. The *Digest* piece ends with a quotation from Percy regarding the project's "wasteful and irresponsible spending" that is entirely unsubstantiated. By coincidence, that's the conclusion of the *Washington Monthly*, too.

Was there ever a factual base for challenges to TARP?

Yes. It was provided by MSD Commissioner Joanne Alter, whose press release dated February 14, 1978 became the springboard for the *Tribune* "exposé" already noted. At that time, she requested a delay in the project.

In a recent phone conversation, Alter reviewed the events and charges made then: Contract bids were alarmingly higher than the MSD estimates. The MSD was ignoring valuable suggestions, such as to drill rather than blast vertical drop shafts. Some said that the project was overdesigned, which added to cost. Federal funding, which was originally available for all facets of the overall concept when Alter helped to sell the project to the suburbs, was being rescinded. And the design engineers (Harza and three others) were appointed to oversee construction at a fee of \$26 million. While high contract bids were never fully explained, the MSD has adopted engineering suggestions on drilling. And while the "level" of the design is a subjective matter, neither Harza nor any other party has been accused of wrongdoing. In fact, Harza's competitors have praised the design as pioneering.

Percy was acting with prudence when he called for a study on the basis of the Alter press release and subsequent news articles. But it is questionable whether a moratorium on funding should have been established before the facts were in. By charging waste and mismanagement in a Democratic administration's funding project, Percy and other Republicans could project an image of fiscal responsibility, even though delaying the project has added significantly to its costs.

Where do we go from here?

First, impounded funds for the current fiscal year could be released. Other worthwhile Illinois communities' needs should be entered in the EPA grants-projects program, which is administered by need, not state total, although it's Percy, not the EPA, that has presented TARP as an either/or situation.

Alter has suggested that the National Academy of Science might assess TARP. They could start by looking at the operating O'Hare facility and, if it is found to be a worthy prototype of the major sections, give their professional blessing to the project.

And the MSD, together with the Federal Office of Management and Budget and/or the GAO, could prepare a current budget for completing Phase II plus all required suburban sewer upgrading. This could be expressed both in current and constant dollars, for easy reference to past quotations, and calculated with and without Federal participation.

The public needs to know exactly what the numbers include. While stating a per capita figure of \$300 or \$500 for completion makes the big numbers more understandable, it does not express actual tax impact. These

per-capita type numbers are reduced by Federal and state grants and industrial participation, becoming a fraction of the original number for the taxpayer.

How "huge" are the numbers?

The GAO's figure is scary: perhaps \$12 billion, all-inclusive. But by analogy, the average \$65,000 house might be said to have a variable-rate mortgage, estimated at 12 percent, plus maintenance at projected inflationary rates for heat, electricity, water, and general repairs, plus upkeep for the next 50 years—let's say at least \$500,000 "GAO cost" for that little place.

Although the GAO claims that its method is standard for figuring costs on public works, the method is not applied to the military. The wildly overbudget F/A-18 carrier-based fighter plane rose in price from \$12.875 billion for 811 planes to \$37.890 billion for 1,877 planes in the same year. That's an increase of about \$4.3 million per plane "explained" as 77 percent inflation, 18 percent design change, and five percent real cost increase.

Curiously, that five percent cost increase on the F/A-18 is itself \$1.325 billion—greater than the cost of completing Phase I—for a plane whose landing gear collapsed during demonstration. Moreover, since this plane is useless without a carrier (\$3.4 billion), which in turn needs escort ships (total, \$17 billion), should the GAO say that the F/A-18 costs the production price of \$10 or \$11 million each, or the in-operation cost of \$17 billion? That's the gist of the cost battle between the MSD and the GAO over TARP.

How "huge" the \$1.2 billion figure (to complete Phase I) is to the Federal government depends on context. It's equivalent to the "negligible" cut in Aid to Families with Dependent Children; the "modest" annual cost of aid to Israel; the "reasonable" price tag of a Trident submarine. Or it's the equivalent of the O'Hare Airport expansion.

Because the multi-million dollar cost of flooding is borne essentially by individuals, it is easily minimized in cost-benefit studies. Percy's own Citizens' Task Force has reported: "The cost-benefit study mandated for most capital expense projects seems to have become an instrument for advocacy rather than an objective assessment of facts . . . because of the lack of an accepted and widely understood method of assessing social and economic benefits and costs that are not readily expressed in monetary terms. . . . The Task Force believes it is important to intelligent public discussion that a uniform method of calculating benefits and costs for all agencies be established. . . ."

It suggests that, in the absence of uniform calculations, there has been no intelligent public discussion. And that's closer to the truth than most of the anti-TARP studies and reports have come to date.