France's Inland Water Transport: Abolish Short-Term Thinking!

by Karel Vereycken

The following is a programmatic report for the campaign of Jacques Cheminade, 2007 Presidential candidate of the Solidarity and Progress party in France. For more on the campaign, see www.cheminade2007.org.

This article, far from being exhaustive, aims to sketch some broad concepts relative to a new policy required for transportation of both freight and personnel. While it concentrates on France, its principles can be extended everywhere, especially in Europe.

Instead of adapting transportation infrastructure to the "current needs" of a misbegotten and territorially unbalanced situation resulting from "globalization," the proposed public transportation infrastructure planning will be a vector for new, healthy growth, based on the maximum valuation of human potential obtained by more harmonic utilization of geography, combined with a renaissance of research and development, the machine-tool sector, and industry at large.

An Introductory Paradox

Looking at the roster of the world's top 20 container ports (**Figure 1**), we find 3 in the United States, 6 in Europe (but none in France), 11 in Asia (including the top 6). How many African or Ibero-American ports? Zero!

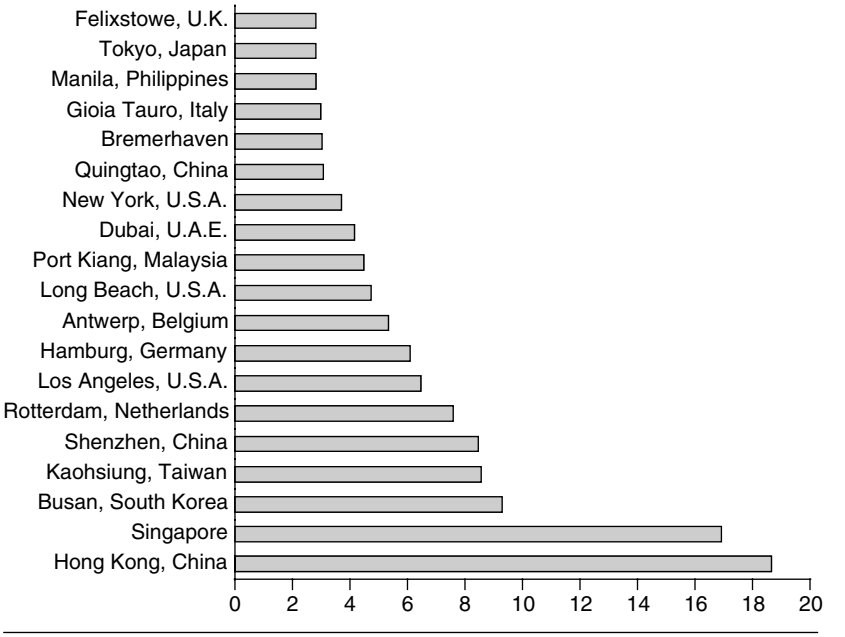
These statistics reveal the real nature of transport, worldwide, today.

The "globalization" of the world's productive capacities for exclusively short-term financial aims has been based on the skillful combination of two factors: 1) low prices for raw materials and energy (a feat that is now over); and 2) cheap, "flexible," and atomized (i.e., unorganized) labor.

While before the 1990s, that cheap labor force was imported by the industrialized sector, the policy of outsourcing later brought about a physical transfer of productive capacity to countries where labor remained cheap, precisely without the infrastructure (physical and social) that would cause its costs to rise.

However, Asia did invest gigantic sums into basic infrastructure, including high-tech capabilities, and rose to be the "workshop" of the planet. But only a minor part of its production goes to satisfying its own markets, while most of its produce is sent to the "profitable" markets of Western Europe and the United States. This "free trade" competition is not aimed at mutual development, but causes what some have called "controlled disintegration" of the physical economy, a growing source of parasitical financial profit, reinvested to sustain the speculative "Greenspan" bubble economy that is

FIGURE 1
The World's Top 20 Container Ports, 2003
(Million TEUs)



Source: Containerization International.

Container shipping indicates a high level of concentration of traffic around the largest port facilities, the top ones being Pacific Asian ports. Of the 240 million TEUs ("Twenty-Foot Equivalents") transshipped in 2002, about 127 were handled by the top 20 ports.

now about to burst.

In this context, the fact that maritime and inland water transportation have lately increased, does not signify a healthy growth policy, since the figures hide a totally opposite dynamic.

Make France a Modern Industrial Nation Again

Reshaping transportation policies starts by banning obsessions with short- and medium-term financial "results." Only a long-term vision makes it possible to properly conceptualize the development of human labor. If one wants to make France a competitive nation, enhancing the potentialities of its people, one has to consider a new industrial policy, the fruit of an ambitious research and development policy. At the center of the "wedding" between R&D and industry, there has to be the spine of any physical economy: the machine-tool sector and the training of its workforce, by such methods as were used in France by the Academy of Sciences under Jean-Baptiste Colbert and Gottfried Leibniz, and were continued by the famous École Polytechnique.

During the Presidency of Gen. Charles de Gaulle, France spent about 3% of its Gross Domestic Product on R&D, of which 2% was for public research. The latter was reduced to only 1% when Georges Pompidou became President in 1969.

In 2005, the French national and European objective is to arrive at a miserable 3% of GDP spent on public R&D by the year 2010, as projected by French President Jacques Chirac. The relevant French ministry comments that to "attain a rate of 3%, beyond an increase of GDP percentage, one has to increase investment by about 40% for eight years, which is considerable." In France, private corporations dominated by financiers without any long-term vision, and polluted by physiocratic fantasies, invest very little in R&D: 25% less than their counterparts in Japan or the United States, and 40% less than in Germany.

But France, which possesses (for the moment) an excellent public health and educational system, and which already has a broad infrastructure base, has the potential to become the "industrial laboratory of the world," by orienting 5-10% of its workforce into theoretical and applied research.

A national state of economic emergency could mobilize public credit to make this a reality, and create some 6 million jobs.

Once this becomes a national mission, how can we create the optimal conditions to accomplish it?

Regarding the transport of individuals, we consider that the time "wasted" in daily commuting should under no circumstances exceed two hours. This is essential to allow the labor force to work, receive training, pursue cultural enrichment and recreation, and invest the necessary time into its children and family. Traffic jams and long commutes add a cost of many million euros to the French economy.

The creation of 6 million jobs in France around the R&D sector needs to be accompanied by:

France's containerized shipping lags behind many other European nations' because of the lack of infrastructure required to service the ports—notably, the canal system.

Housing: Each worker should be able to live close to his workplace. The Canadian state regulation of apartment sales and rentals should be studied as an example.

A hundred "sunrise" cities: A national plan would prepare about 100 medium-sized French cities to become, over the next 20 years, cities with about 1 million inhabitants each, that number defining a physical limit beyond which transportation time becomes unacceptable with existing technologies. This plan should offer priority opportunities for people currently concentrated in urban *banlieus* (suburban sprawl), and favor the end of ghetto formation around the Paris megalopolis. Every citizen has the right to live in a real city.

Education, health, metro: These cities have to be equipped with a polytechnical university (a meeting point for research, education, and industrial innovation), with a university hospital center (offering the best of the French health system, while combining medical care, research, education, and production of pharmaceuticals), and urban metro grids reaching far into the suburbs.

The Paris public transportation system (a world miracle), employing 20,000 people, handles 3.5 billion (!) trips a year! But there is no objective reason to have one out of every four Frenchmen living or working around the Paris region, where companies set up shop mainly because "it is cheaper to be where everything is already at hand."

Taking instead the superior standpoint of "Public Territorial Planning" (*Aménagement du territoire*), the entire transportation grid (rail, road, canal, air) has to be revamped. Is there any logic in the fact that it takes less time to travel across

Paris, than it does to reach Bordeaux from Lyons? The return of a long-term vision will restore the full dimension to maritime, rail, and inland waterway transport.

Let us take the example of waterways, to clarify a global approach to transportation as a whole.

Waterways: The Logic of Physical Economy

If one considers transportation as a transformation of the physical economy (work), one realizes that to be efficient, this labor has to be in harmony with the principle of least time (Fermat) and least action (Leibniz), principles that vary depending on the medium and the topology of the space-time in which they take place. Physical "productivity" means accomplishing a maximum amount of work with the minimal expenditure of energy.

Classifying the modes of transportation according to this principle, one discovers that water transport appears at the top of the list. A cargo of freight floats, and can be moved with relatively little expenditure of energy. Next comes rail, then road, then airplane, and then helicopter. Historically, the large deltas of rivers or their confluence offered mankind the perfect "free" natural infrastructure, suited for urban development.

It is certainly not by chance that the four French cities whose population is above 1 million today, are either great seaports (Marseille) or inland ports (Paris, Lille, Lyons). The Seine River alone carries into the capital over 12% of its freight requirements.

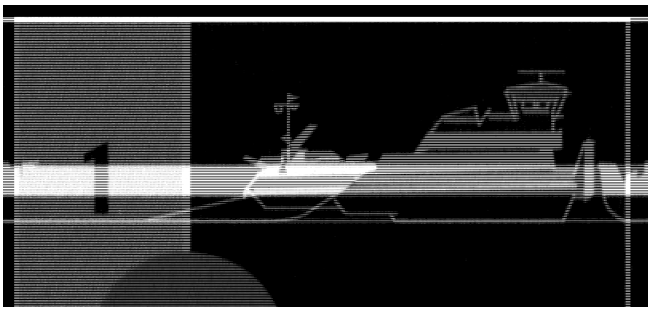
If not a single French port figures on the list of the world's top 20 container ports, it is because a dense network of infrastructure capable of servicing both port and hinterland is cruelly nonexistent. By systematic underinvestment into the French canal system, the nation has condemned its ports to extinction.

As a counter-example, the geographic location of the Belgian port of Antwerp, situated 68-89 kilometers inland, has been paradoxically its crucial advantage, since pre- and post-port handling are an increasing part of the overall cost of the multimodal logistical chain of any port area. Antwerp functions as a multimodal platform, directly connected to the trans-European corridors and infrastructure networks of canals, rail, roads, and airports. Its maritime port is Europe's largest freight rail station, with 140 freight trains leaving each day. The station can handle 2,800 freight cars a day, and Antwerp has 4.8 km^2 of covered warehouses available. Also the Customs procedures have been completely computerized.

Of course, canal infrastructure is more easily built on level terrain. When the topographical conditions are less favorable, man builds railroads, and where rail is too complicated, roads. To travel across the oceans, ships require the least effort, followed by airplanes. It becomes obvious that for each transportation mode, the energy spent per ton/km/hr will rise, even if efficiencies of scale can lower the freight cost per item.

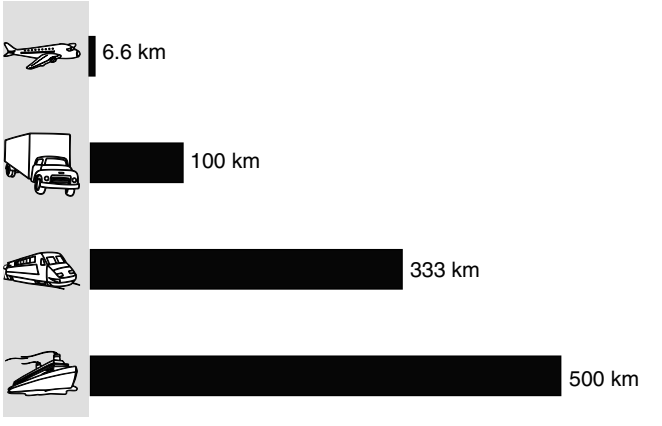
On a large canal, a boat operating 5,500-ton pushed barges can transport the equivalent of four entire freight trains, consisting of 220 cars carrying 25 tons of freight each (**Figure 2**). In the United States, Inland Rivers Ports & Terminals, Inc. estimates that "on the lower Mississippi, one 10,000-horsepower towboat can push 40 barges that have the carrying capacity of 600 railcars or more than 2,200 trucks."

FIGURE 2
Efficiency of Freight Transport



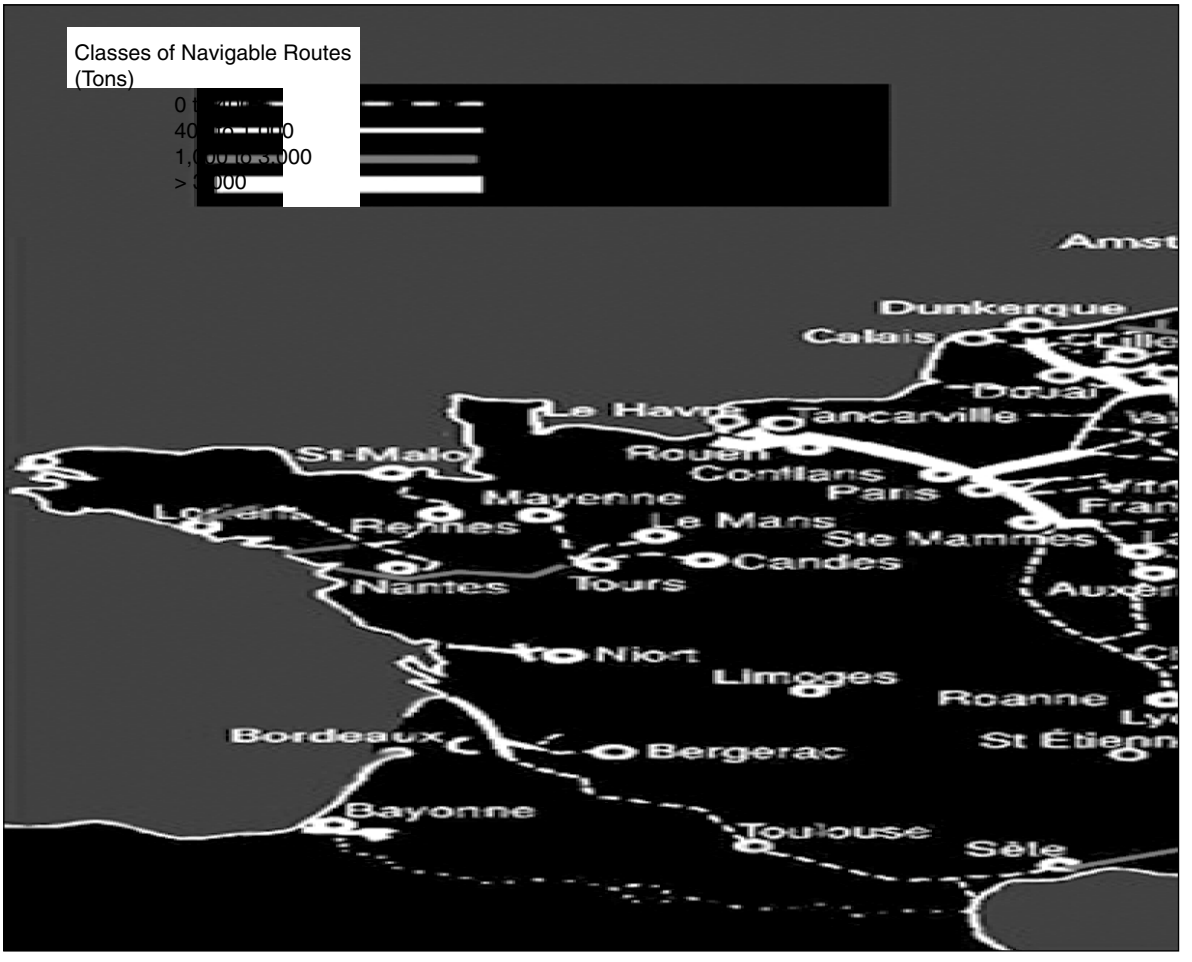
The least-action principle: One single pushed barge convoy can transport the equivalent of four complete freight trains or 200 trucks.

FIGURE 3
Travel Distance With 5 Liters of Fuel



With five liters of fuel, a truck can move one ton of freight over 100 km, while a train can move it over 333 km, and transported over water, the distance varies between 215 and 500 km (**Figure 3**). Therefore, it is estimated that the cost per ton/km oscillates between 0.03 and 0.45 euros for water transport, generally cheaper than rail, and two or three times cheaper then road transport. Maritime transport follows the same principle. A significant part of the container traffic arriving in the French regions is handled through non-French ports such as Antwerp, Zeebrugge, and Rotterdam. Why? In the

FIGURE 4
Part of Europe's 20,000 Kilometers of Waterways



Source: www.waterwire.net.

price of a trans-Atlantic load of freight transported "door-to-door" from Troyes (France) to New York, 80% of the cost goes to pay for passage across European land! Also, the range of regular maritime transportation routes available between Antwerp and the Far East, for example, forces 68% of all exports of the Val d'Oise Department (north of Paris) to leave Europe through a foreign port.

Against Short-Term Financial Logic

Against the healthy logic of physical economy, there stands (destructive) short-term financial logic. "Smart" accountants have tried to lower costs by suppressing intermediate stages.

Waterway and rail transport incur collateral costs for storage and inventory. To manage these stocks efficiently, one naturally has to spend some money (for warehouses, insurance, surveillance, personnel, etc.).

Part of transporting goods involves shifting from one mode of transport to another. The great "discovery" of our accountant maniacs was the "zero inventory" concept, achieved by the famous "just-in-time" policy, which lowers both costs and transportation time. This means that, for example, every morning a truck arrives at a production site and unloads all the products necessary for a single day of production. Another truck picks up the produced goods in the evening. Where is the inventory? It's on the road: in trucks that are often so overloaded that they destroy the highways, and driven by drivers who work for firms that pay no attention to the toll that the onerous working conditions takes on exploited illegal immigrants and other drivers.

Traffic jams cost the French economy 1 billion euros a year, and it is estimated that 70% of the 6,000 fatal traffic accidents each year in France are due to trucks. We should integrate that price into global transportation costs.

The result of the accountant psychosis was the "all road" transport mode (and now also Short Sea Shipping, short-haul

FIGURE 5

Water Access to Europe's Industrial Centers

Source: www.inlandnavigation.org.

The map shows the underdevelopment of the southern part of France. Transport by Short Sea Shipping (SSS) is rising, along with "all road" transport, while rail and shipping decline, as a percentage of overall transport modes.

maritime transport), in particular at the expense of rail and inland waterways.

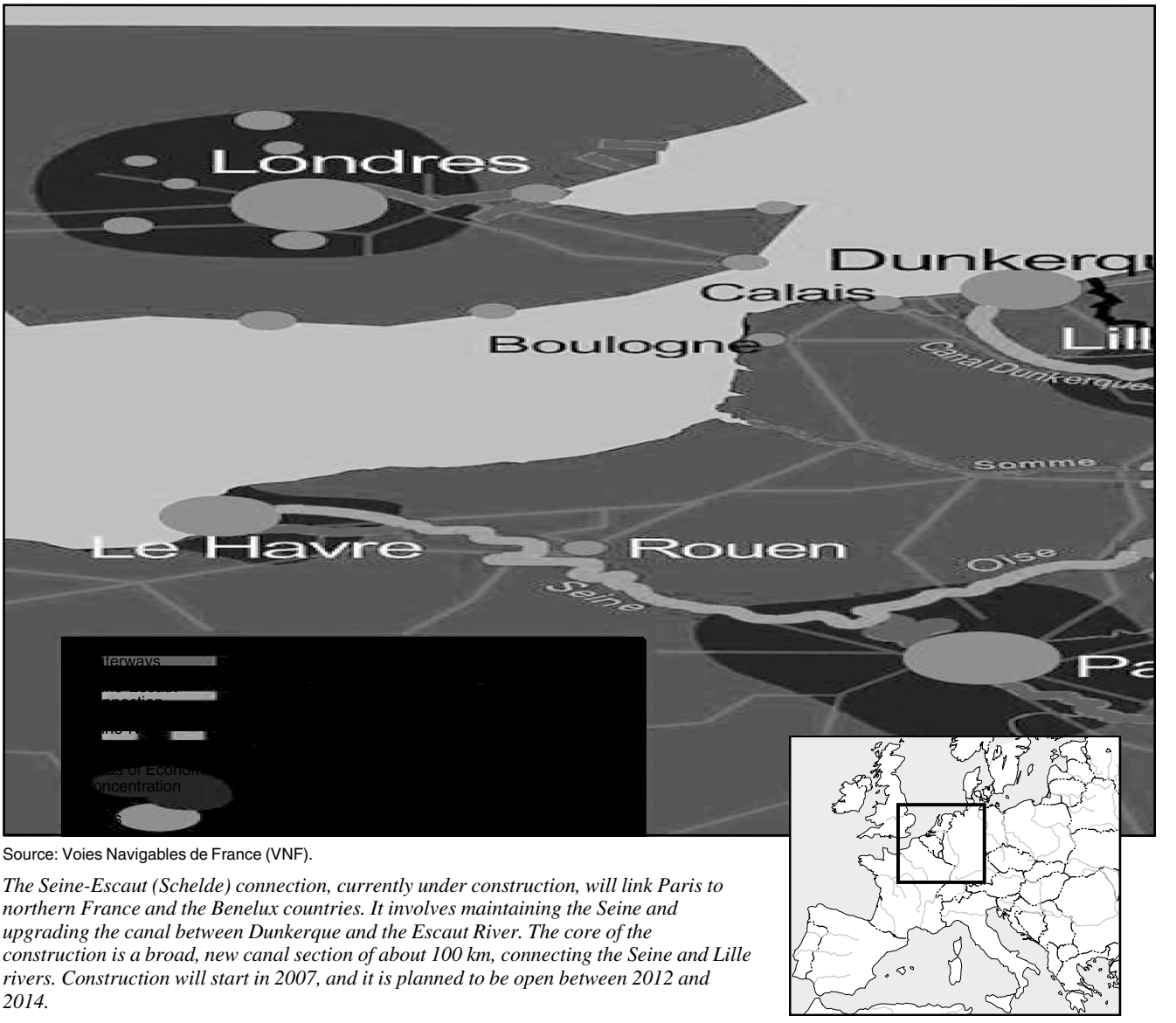
Between 1997 and 2001, road transport increased in France by 20%, while rail fell by 10%. Note also that the two largest French road-transport companies, Geodis Calberson and Gefco, are as good as subdivisions of the French national railroad company, SNCF. Since SNCF became heavily indebted, when it started borrowing cash from private banks at high interest rates, it now looks for rapid financial gains by building high-speed TGV rail on "profitable" trajectories only, and by means of road transport. The older, "secondary," and especially transversal connections through France are being dismantled. Recently, instead of employing the workforce needed to maintain the quality of the railway grid, SNCF simply decided to lower the speed of trains on 15,000 km of its railroads!

Ferroutage (road-rail combination, putting trucks on trains) and *Merroutage* (putting trucks on ships), while useful as temporary solutions, are in our opinion a bad "good idea." Even if they give a new impetus to maritime and rail transport, they avoid the real challenge. From the standpoint of physical economy, it is clear that transporting the means of transportation themselves—instead of creating efficient modern transboarding systems—implies a large, useless expense of energy to transport the transporting vehicle. Would you put passenger cars on a bullet train, instead of renting a car at the station upon arrival?

Even more than the railroads, waterway transport has been the victim of "short-termism" (as Margaret Thatcher coined the phrase). Although water transport has continued for heavy, bulk freight (coal, cement, grains), since they need to be stockpiled in any case, still the short-term logic of the system overall is killing this mode of transportation, which remains the cheapest and least polluting.

FIGURE 6

Under Construction: The Seine-Escaut (Schelde) Canal



Source: Voies Navigables de France (VNF).

The Seine-Escaut (Schelde) connection, currently under construction, will link Paris to northern France and the Benelux countries. It involves maintaining the Seine and upgrading the canal between Dunkerque and the Escaut River. The core of the construction is a broad, new canal section of about 100 km, connecting the Seine and Lille rivers. Construction will start in 2007, and it is planned to be open between 2012 and 2014.

France's Existing Waterways

France has 6,967 km of navigable waterways (**Figure 4**), or about one-third of the 20,000 km of navigable waterways of Europe. Classified at seven different levels (from 0 to VI), each size is designed according to the following criteria: maximum length of vessel and cargo, defining capabilities in turns and locks; depth in the water and height of boat and cargo, defining the space required underneath bridges.

While the 1,647 km of Size 0 (such as the Canal du Midi, built under Colbert in the 17th Century) are more and more used for tourism, the rest of the canals divide up into three groups.

1. The 3,387 km of size I and II (called "Freycinet," after Transportation Minister Henri Freycinet, who built these canals in the 19th Century). These are used for barges up to 38-40 meters long and 5.25 m wide, with a capacity of 250-350 tons (the equivalent of 10-14 trucks).

2. The 225 km of size III, called intermediate, for barges of 90 m long and 6 m wide (650-1,000 tons, the equivalent of 30-50 trucks)

3. The 1,708 km of size IV, V, and VI, the large or "European" size, allowing convoys of 185 m long and 12 m wide, with capacity going from 1,000-4,500, or even 5,000 tons (equivalent of 170-200 trucks).

To maintain the waterways, France will spend 640 million euros between 2000 and the end of 2006, which looks meager, compared to the 7 billion euro deficit of the SNCF. On top of that, decentralization policies will gradually bring the central government to disengage from the maintenance of waterway infrastructure, which then will become increasingly reduced to a tourist attraction.

The French fleet of barges had 7,174 ships under French flag in 1970, totalling a useful load of 3 million tons. In 2003, there were only 1,894 left, carrying only 1.3 million tons. Over 80% of the fleet was built before 1970 (compared to 50% in Germany). The Freycinet barges are not built any longer, and as they fall into disuse, 3,387 km of canals will be written off.

France has a quite negative score in terms of waterway transportation. In 2000, the proportion of goods transported by waterway was 42% in the Netherlands, 13.7% in Germany, 12.5% in Belgium, and only 3% in France. From 1997 to 2001, however, tonnage transported on French waterways rose by 20%. But closer scrutiny shows where the problem lies. While transport throughput is increasing, as we indicated above, the outsourcing of the production of physical goods to Asia and Eastern Europe requires, by definition, long hauls which would otherwise be superfluous, as well as dependence on other countries. For example, the German steel industry is now dependent on Chinese coke producers, who in turn are more and more pressured by their own domestic needs.

It was the recent explosion of fossil-fuel prices that finished convincing "the markets" that waterway transport is profitable. An analysis of the nature of goods transported in the year 2000 indicates that 34% were raw minerals and construction materials (proportionally falling), 22% agricultural products, and 10% oil products and mineral fuels. Besides the transport of exceptionally large freight—such as the wings and spare parts for airplanes like the Airbus A-380 between Bordeaux and Toulouse—waterway transportation concentrates on other types of heavy, bulk freight. Very recently, container transport was selected by large consumer-goods distributors, causing a little boom in the sector.

The 'Goose Claw' and Beyond

The tragedy of the large canals on French territory is the fact that they are all dead ends. All experts know that it is precisely the interconnection of the northern and eastern network with the South that is necessary for a national and international economic boom. The map of industrial production accessible by waterways dramatizes that reality (**Figure 5**).

For the time being, and guided by pragmatism within the current bankrupt system, the French state is trying to optimize what already exists. For example, the Seine-North linkage is under construction (about 100 km of large canal between the greater Paris region and Compiègne and Lille, between 2006 and 2012), connecting Paris with Antwerp (Seine-Schelde link) and Rotterdam (**Figure 6**). A very useful project, but insufficient.

A vessel for a nuclear power plant is towed on a barge along a French waterway. An upgraded Rhine-Rhône canal corridor could become a vast assembly line for floating nuclear power plants.

The real challenge is to undertake the construction of what experts call the "goose claw" (**Figure 7**). This is a triple linkage between the Rhine and the Rhône; between the Moselle and the Rhône; and between the Marne and the Rhône, extendable with a fourth connection between the Rhône and the Loire. After all, France's history of canal building started when Henry IV's advisor Sully in 1604 built the Canal de Briare, connecting the Seine with the Loire, integrating France's two main development corridors of that time.

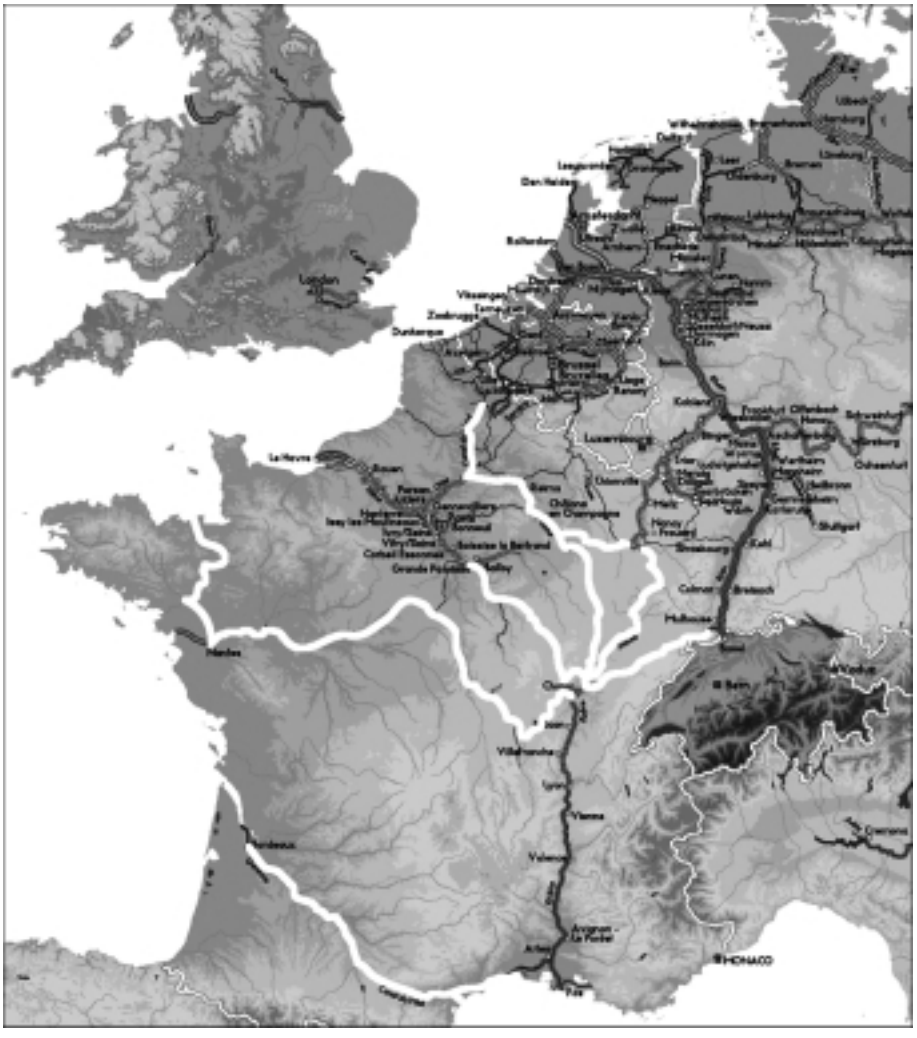
This "goose claw" was imagined over a thousand years ago by Charlemagne's advisor, the Irish monk Alcuin. Today, this would mean, more precisely, to enlarge existing canals up to the large size between Chalon-sur-Saône and Mulhouse, passing by Montbéliard following the Doubt River. This link would transform the Rhône corridor, since it defines the least-action path between Egypt's Port Said (Suez Canal) and Europe's productive heartland, the Ruhr region.

Today, without this waterway interconnection, a ship travelling from the Mediterranean to reach the Rhine has to pass through the Dardanelles and enter the Danube in Romania; the Danube has been connected to the Rhine since 1993. The other possibility is to pass though the Strait of Gibraltar, go around Spain, and enter the Rhine at Rotterdam. The new interconnection of the Rhône corridor would shorten today's trajectory by over a thousand kilometers and would transform France into a North-South corridor, opening up Europe for Africa and Africa for Europe, and both for southern France.

With that perspective, the Rhine-Rhône canal corridor could become a vast assembly line for floating nuclear power plants, indispensable for the economic rebirth of the countries of the Southern Hemisphere. In the French industrial city of Montbéliard, the special steel vessels are already produced that are required for nuclear power plants, a capability lost in the United States at the present time. Constructed on floating

FIGURE 7

Build the 'Goose Claw' To Improve France's Water Transport



Source: Voies Navigables de France (VNF).

The thick, white lines (added by the author) show the projects advocated by Presidential candidate Jacques Cheminade and the LaRouche movement in France, including the "goose claw," extending north from Chalon. Six connections are needed, where rivers or canals already exist, but are too small for pushed freight barge convoys: 1) the Rhine-Rhône connection, from Chalon-sur Saône to Mulhouse; 2) the Rhône (Chalon) connection to the Moselle River (Nancy); 3) the Rhône (Chalon) connection to the Marne River (Rheims); 4) the Rhône (Chalon) connection to the Moselle; 5) the Rhône (Chalon) connection to the Seine River (Paris); and 6) in the south, the Canal du Midi, built under Jean Baptiste Colbert in the 17th Century, has to be replaced with a modern canal, connecting the Atlantic with the Mediterranean.

platforms, nuclear power plants can be completed, going from Montbéliard, through Chalon to Lyons, to finally leave from Marseille. The reopening of the currently blocked underground canal of the Rove (7,120 m) connecting Marseille to the Rhône again, and the construction of a large new canal between the Rhône and Sète, would strengthen the southern French pillar of the Afro-Eurasian land-bridge.

This great venture in Public Territorial Planning to build a "polytechnic" country will also need totally new waterways. The water management of the Loire (France's longest river), connecting Chalon with Nevers, Bourges, Tours, Angers, Nantes, and the canal of Bretagne, and also a new Canal du Midi, connecting Narbonne with Toulouse and Bayonne, would be highly useful.

Certain environmentalists, when they become the instruments of green fascism, understand quite well the crucial role of waterway management for the development of nuclear energy in France. The Compagnie National du Rhône (CNR), indeed, did a great deal of water-flow regulation, in order to allow nuclear power stations to have at their disposal, every day of the year, the water necessary for cooling. Part of the green fixation against dams and water management derives from opposition to nuclear energy. Prince Philip of England personally, the man who declared his desire to be reincarnated as a deadly virus to "re-establish" demographic equilibrium on Earth, did not hesitate to come to France to campaign against the Rhine-Rhône waterway connection, a project then debated by Alain Juppé and the city of Lyons. Leader of the Green party Dominique Voynet traded the support of her party for the Socialists, in exchange for abandoning the canal project and dismantling France's modern fast-breeder nuclear power plant, the Super Phoenix.

Today, any debate on this water-transport project, which could give France a crucial role in the Eurasian Land-Bridge, is entirely taboo. One might hope that, thanks to the coming financial blowout and the ongoing economic breakdown crisis, it will finally be allowed again to think in terms of physical economy, for the well-being of future generations.

On the contrary, if we fail, France will rapidly become more and more an abandoned museum for imaginary tourists.