Europe Considers Industrial Mergers

London. For the past few months, headlines in the European press have been full of mergers, potential and actual, between firms heavily involved in advanced technology.

Such industrial regroupings might be regarded as a response to the startling economic expansion which has accompanied the evolution of the Common Market and other trading blocs. But the mergers are usually linked, in the European mind, with what is regarded as a serious threat of technological colonization from the American side of the Atlantic. European firms, it is felt, must concentrate so that they can build the sales forces and research teams needed to compete with large American firms which have already secured enormous beachheads in the continental market of Europe.

This is especially true in the science-related industries, it is felt. These industries, generally the fastest-growing, seem to be fundamental to the future of the Atlantic community of technologically advanced countries which has grown up.

Such thinking has raised in a more urgent way the broad and only partially explored subject of the links between economic strength and heavy commitments to research and development. The subject raises many questions for the politicians who are being forced to start thinking—and quickly—about relationships among science, technology, and the economy.

When, they are forced to ask, is the purchase of a European firm by an American one a dangerous event? How genuinely domesticated are the European subsidiaries of American firms? Is the U.S. so far ahead in certain businesses, such as aircraft and computers, that only limited competition will be possible? Has alert European management relied too long on a policy of buying research results from abroad? Can one keep together the scientific team needed for applied research and for intelligent purchases (outside a company or outside a country) of advanced technology without an incentive in the form of first-rank problems?

Amid all the questioning, however, it is recognized that much of the story of supposed technical mastery is really a story of the organization of firms. In an age of rapid technical advance, one of the most potent organizations for rapid application of research discoveries is a force of salesmen and sales engineers like the one which has helped IBM, a late-comer to the electronic computer business, get and keep over 70 percent of the world market. It is beginning to be appreciated in Britain that organizational problems may partly explain why Britain, which hasn't lacked for ideas about aircraft and computers, has not been able to slice out a secure piece of the world market in either industry.

Considerations like these certainly influenced the French Government's decision to abandon its boycott of the Common Market organizations and led France to start encouraging concentration in such industries as heavy engineering, aluminum, and chemicals, even if this meant mergers between French firms and firms of other countries.

Facing Facts

Despite the uproar over its recent decision to exert national control over NATO operations on French territory, the French Government is generally far more internationalist in its acts than in its pronouncements; it is quite ready to be instructed by events. It was evident, for instance, that, although France had been the member of the Common Market which had benefited most in terms of trade within the market, it was also the member which most needed the stimulation of such trade. France's overall trade with its Common Market partners tripled between 1958 and 1964, but in the same period France increased its industrial production by only 39 percent, while Italy was increasing its production by 75 percent. In 1963 France spent a smaller proportion of its gross national product on investment than any other Common Market nation except Belgium, according to Common Market figures. In the summer and fall of 1965, the French government seemed ready to destroy the Common Market, but the other five members resisted firmly. A climate for facing facts was created. It was realized, for one thing, that necessary mergers would be more difficult if the Common Market were broken.

French industry is seriously fragmented, and international mergers must be part of any solution to the problem. While 36 percent of all firms in Germany and Italy had more than 1000 employees, the figure for France was 21 percent. In the chemical industry, in France as many as 60 firms account for 50 percent of sales, while one firm does so in Italy. In Britain, one chemical firm accounts for 40 percent of sales, and in Germany, three firms account for 30 percent.

One response to this situation is a plan for the largest French chemical firm, Rhône-Poulenc, and the largest German firm, Farbenfabriken Bayer, to merge. Together, these two enterprises had $2.5 billion in sales during 1964, not much below DuPont's $2.8 billion.

Two projected major mergers are being discussed in the French steel industry. These would be between Wendel and Sidelor (owned by the Pont-à-Mousson group) and between Usinor and Lorraine-Escaut. The latter project is actually part of a chain of mergers. Recently, two companies merged to control 80 percent of Usinor. In 1965, Usinor and Lorraine-Escaut produced a total of 6.4 million tons of steel; it is expected that they would produce 8 million tons a year when merged.

If these two mergers are effected, each of the consolidated firms should be able to compete more effectively than the individual firms now do with Thyssen, the rapidly expanding giant of the German steel industry. But French firms are not the only ones with this idea: the German steel firms of Hoesch and Dortmund-Hörder Hüttenunion are merging with the Dutch firm of Hoogovens. The combined 1964 sales of these firms came near Thyssen's total.

Naturally it is not as easy to effect such mergers today as it will be when the Common Market has successfully concluded its high-priority effort to draft a six-nation law for corporations and get the tax policies of the member

nations more closely in line. But differences in corporation law and in tax policy are not the only problems. Even more difficult questions are, who is to control the actions of the multinational corporations, and, even more important, how is a common policy for controlling the effects of such economic concentrations to be operated?

The French writer Alfred Grosser recently noted that the firms most likely to merge will be in prosperous regions, such as the Ruhr in Germany and Lombardy in Italy. What about the regions which the various governments are seeking to build up—the south of France, the south of Italy, the south of Germany? The implication was that the multinational mergers will add to the pressure for supranational institutions in Europe.

Montecatini-Edison

Of course, mergers also create pressures within single countries when they involve major domestic firms. The most dramatic recent illustration of this comes from Italy, where there are plans for a merger between Montecatini, the dominant firm in the chemical industry, and Edison, the much-diversified firm which is investing the money it received as compensation when its huge electric power generating system was nationalized. The plans, discussed in secret during most of 1965, were made public just before Christmas. The main political reaction was worry, and the merger is now being intensively discussed. Not only has the proposal aroused general fears of monopolistic pressure in Italy, but particular government interests are involved. The government's investment corporation, the Istituto per la Ricostruzione Industriale (IRI), owns a significant block of Montecatini shares. The proposed merger would make more difficult the position of the chemical arm of the state-owned petroleum industry, the Ente Nazionale Idrocarburi.

There were, however, strong technological pressures behind the proposed merger, as engineer Luigi Morandi, a vice president of Montecatini, explained in a newspaper interview (*Corriere della Sera*, 30 December 1965).

Both the chemical and steel industries produce "intermediate" materials to be sold to other industrial customers. Now that the removal of all tariffs between Common Market countries is in sight, Morandi said, firms in all six nations will have a very wide choice of suppliers of such chemical and steel intermediates. This is one pressure for consolidation.

Another pressure derives from the dynamic evolution of scientific discovery and technological invention, Morandi said. Processes and factories built around such discoveries and inventions age quickly in the chemical industry. In fiscal terms, this means that amortization is rapid and that large sums are spent each year for this purpose. In organizational terms, it means that the chemical industry must hedge against obsolescence in one field by covering many fields. The pressure from the laboratory operates in other ways, which Morandi described. For one thing, the research one must do to avoid being outstripped by competitors is becoming ever more expensive. Also expensive is the great effort needed to realize the full potentiality of research in terms of applications. This effort includes troubleshooting when a new process is introduced on the factory floor, bringing standard processes to a higher efficiency, and constantly making small improvements in a product.

Morandi also found a strong argument for the merger in the industrial organization dictated by chemical processes. The industries built around such processes are like great trees growing above a wide expanse of shrubs, he said. He noted the great integration, within the industry, in the manufacture of nitrogen derivatives (ammonia, nitric acid, urea, fertilizers) and of petrochemicals (plastics, synthetic fibers, solvents). Built on the basis of the latest techniques for extracting a wide range of materials from a prime source, plants in the nitrogen and petrochemical industries have been turning out enormous—previously unimaginable—volumes.

Interdependence

But the nitrogen and petrochemical industries are not independent of each other, Morandi noted. An outstanding characteristic of the chemical industry, in his view, is the interdependence of all its branches, which grows tighter as the enterprise grows larger. With large plants, by-products become economically utilizable. For example, the cracking of petroleum yields hydrogen and oxides of carbon which are prime materials for the nitrogen industry. Morandi noted that a small plant could not take advantage of such linkages.

Turning to the monopoly argument, Morandi said that monopoly could be defined only in relation to the size of the market. It has been said in Italy that, after the Edison-Montecatini merger has been effected, the firm will produce 52 percent of Italy's chemical fertilizers and 62 percent of her synthetic fibers. But if one discusses the merged firm's potential production in terms of Common Market production, the two figures shrink to 18 and 17 percent, respectively.

Furthermore, Morandi noted, the growth of giant integrated firms handling processes suitable for large-scale production need not hamper the growth of small specialized firms producing sophisticated chemicals in small batches.

In the United States such arguments might appear unanswerable, but this is not the case in Europe. On this side of the Atlantic there is less acceptance of, and more emotionalism about, the rapid change and sharp competition which the United States has done so much to stimulate through its eagerness to evolve and employ new technology.

This eagerness is one of the many U.S. characteristics which Europeans are discussing while they ponder proposed mergers and other means of remaining strong competitors in advanced, science-based industries.

How Much Competition

There is everywhere much confusion about the real extent of American competition, and no conclusive arguments have emerged. Instead, those concerned with trying to make policies that will accord with the technological facts are looking at the conflicting arguments.

Among the most important of these are fiscal arguments. The task of some officials is to determine the sheer money volume of American investment in Europe, which is clearly very great. New German figures indicate that close to half of all foreign investment in the German Federal Republic since World War II has come from the United States, and that there is something like nine times as much U.S. investment in Germany as German investment in the United States.

France most particularly wants to control this volume, by making the new investment money pass various immigration tests. The basic question is: Will

the establishment of the foreign subsidiary add some desirable new activity, such as a research laboratory, to the French economy? The European countries are far from agreed on such controls, but they are busily gathering statistics on the extent of American participation in their economies.

Meanwhile there is much worry in Europe about a short-term result of the American campaign to induce U.S. firms voluntarily to reduce their exports of capital to Europe and elsewhere. Some reductions appear to have been achieved, but the American subsidiaries in Europe have gone looking for loans in Europe and have entered the European bond market in a big way. In Europe's less richly supplied capital market, this has had the effect of raising interest rates at the very time when European fiscal specialists would like to see the difference between high European interest rates and low American ones reduced through U.S.-government legislation to sharply increase U.S. rates. A U.S. rate increase would soak up some excess American capital, people in Europe argue, and keep it from migrating over here.

Fiscal Paradoxes

But there are many paradoxes about the loans and bonds through which American firms are financing their continuing European expansion. Some observers feel these bonds and loans are less inflationary than straight imports of capital would be. Much of the money borrowed is used either for purchase of European equipment or for short-term deposit in European banks.

Such paradoxes are vexing, for officials on both sides of the Atlantic have policy to make, whatever the state of academic understanding of the fiscal issues linked to technology's impact on commerce.

Fiscal issues are important in the application of scientific discovery; they are not peripheral in their bearing on a nation's scientific strength.

But there are other important issues which Europeans feel they must consider in trying to compete intelligently with what they fear are "cowbird" American firms. One of these key issues is the efficiency of European management. Many people on both sides of the Atlantic are inclined to give European managers a low rating by comparison with Americans. Some American observers say that the wide penetration by American firms which is the cause of so much current European anger is a consequence, in large part, of a European unwillingness to change methods rapidly.

There seems to be a good deal of mythology in this type of talk, and there is no more persistent myth than that of the decay and inefficiency of British industry.

The myth persists after years of almost revolutionary cleanouts of British boardrooms, and in the face of facts such as those recently outlined by business editors Robert Heller of the *Observer* and William Davis of the *Guardian*.

Although the percentage growth of British exports since 1950 has been lower than the precentage growth for France and far lower than that for Germany, it has almost equaled that for the United States. Britain exports 16 percent of its gross national product, while the Common Market as a whole exports 10 percent of its gross product. The U.S. figure is 4 percent.

Although France's exports have grown more rapidly than Britain's, the per capita value is 25 percent below the British figure.

France's more rapid growth in exports has little to do with concentration of industry. Of the 50 non-U.S. firms with the largest sales (as calculated by *Fortune*), the British have 12, the French 6.

U.K. Giants Growing

The performance of these large British firms compares favorably with the performance of U.S. industrial giants. For example, the largest British chemical firm, ICI, whose sales are about 25 percent below those of DuPont, had a faster growth than DuPont in both sales and profits. Between 1957 and 1964, ICI's sales went up 56 percent; its profits, 116 percent. In the same period DuPont's sales rose 40 percent, and its profits, 27 percent.

Such figures make the European picture of American firms leaping ahead because of their own large research efforts and the vast support supposedly derived from the American defense and space programs seem decidedly unrealistic.

It is true that IBM's sales more than tripled in the period 1957 to 1964, and that its profits almost quintupled. But other U.S. giants, like U.S. Steel and Bethlehem Steel, experienced declines, and General Electric stood still. Yet Britain's largest electrical equipment firm, Associated Electrical Industries, expanded its sales by 57 percent and its profits by 42 percent.

Some qualifying factors should be mentioned in connection with such figures. There has been greater inflation in Britain than in the United States. The British firms probably launched streamlining drives later than the American did and so reaped big profits later. And the American firms are getting a better return on their capital. Nonetheless, the figures are an indication that one should not make snap judgments in considering the present transatlantic technological challenges.

Another warning against snap judgments is the degree to which science-based American subsidiaries are becoming domesticated in Europe. There are few quantitative measures of this, but there is one indicator: comparison between the figures, for American subsidiaries in Europe, for sales and for imports from the parent company in the United States.

As has been noted (*Science*, 3 September 1965), in 1963 the sales of overseas subsidiaries of U.S. chemical companies were about 2.5 times as large as direct exports from U.S. chemical plants. In the same year, chemical exports from U.S. firms to their overseas affiliates (in Europe and elsewhere) amounted to about 10 percent of those affiliates' sales (exports, $481 million; sales, $4.8 billion).

Looking merely at such overall figures, American observers would be pleased and Europeans worried at an indication that overseas subsidiaries show considerable dependence on the parent company. But from the European point of view, the figures for European subsidiaries are much more favorable. In 1963, European chemical subsidiaries imported goods which amounted to only 5.5 percent of the value of the subsidiaries' sales (the overall ratio was pushed up by high sales to Canadian and Latin American subsidiaries).

Hence, the European subsidiaries of American chemical firms can be said to have a far greater impact on world trade than the parent firms have and to be fairly free of dependence on U.S. materials.

This situation has led Wolfgang Schoellkopf, associate economist of the

Chase Manhattan Bank, to remark (see *Chemical and Engineering News*, 19 April 1965) that the structure of the world chemical industry is changing fundamentally.

Chemical World

Heavy investment by both U.S. and European chemical firms in overseas markets has led to a worldwide competition, with about 30 major firms confronting each other in most major markets. Such competition has held prices nearly level since 1957, but it has also stimulated a doubling of U.S. chemical exports since 1959.

Schoellkopf expressed doubt that U.S. chemical exports would expand in the future as fast as domestic sales do.

With more overseas subsidiaries, it will be cheaper for the parent company to move some chemical products from one overseas market to another, although the parent company is likely to maintain a wider range of production at home than at any one overseas point. A major factor affecting the cost of movement of chemical goods will be the growth of regional trade blocs like the Common Market.

Speaking on 8 April 1965 to the Synthetic Organic Chemical Manufacturers Association, Schoellkopf summed it up this way: "In future years . . . the multinational companies will be obliged to adopt new export policies that take into account the global scope of their operations. . . . In essence, this change involves switching from traditional exporting to a strategy of global marketing. . . . The volume of parent company exports will increasingly be determined by the foreign subsidiaries . . . and export shipments will become more a matter of accommodating its subsidiaries abroad and less a genuine sale to foreign areas."

These remarks reinforce the view that investment by American firms in European markets is not, of itself, a threat to European technological independence.

In fact, despite the shouting, there are quite solid indications that the supposedly invincible Americans are in difficulties with their exports, even in advanced fields like chemicals. Why else would there be repeated investigations by the U.S. government of the world's shipping rate structure to see if it is rigged to impose a price penalty on U.S. exports?

In 1957, U.S. exports ($21 billion) exceeded imports (around $13 billion) by more than 50 percent. In 1965, exports ($26 billion) exceeded imports $21 billion) by less than 25 percent. For chemicals, the ratio of exports to imports was more than 4 to 1 in 1957 and 3 to 1 in 1965.

In 1957, according to a study by the International Monetary Fund, the U.S. accounted for 23.8 percent of all world trade. The figure in 1965 was 19 percent.

It would seem, then, that the time has come when Europe should have a soberer, more fact-finding, more confident mood as it seeks to define terms for welcoming and controlling U.S. investment while competing with the U.S. even more effectively.

Such an attitude is typified by Gianni Agnelli, head of the Fiat car firm of Italy, who recently denied indignantly that his firm has ever talked about a merger with General Motors. In an interview with *Corriere della Sera* he explained his general attitude toward Europe's real deficiencies in competition with the United States.

The chief advantage possessed by American businessmen, according to Agnelli, is a spirit of readiness to plan for the long term. Such planning requires a close and sympathetic contact with government, Agnelli argued, and it definitely does not call for a robot-like dependence on computers. The individual attributes of courage and enterprise remain fundamental. Such a climate of boldness and long-term thinking is hard to achieve in Europe, Agnelli said, but the effort must be made.

Size of firm is important only in certain fields. But the spirit of decisiveness is required everywhere. Europe is hampered, Agnelli argued, by a lack of egalitarian spirit between the executive and his subordinates, by the lack of constant contact between men of widely varying specialties, by the lack of exchange of talent between the government and industry, and by the shortage of business schools.

Once again it seems necessary to talk about technological competition in terms of management.

—VICTOR K. MCELHENY