

PROJECTING CAPITALISM

A History of the
Internationalization of
the Construction Industry

Marc Linder

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Bringing the World Market Home: Depression-Induced Intra-First World Interpenetration

Bechtel is facing a competitive world as intimidating as the rain forests...it tamed to build its projects.¹

The intense decade-long impulses toward internationalization emanating from the construction boom in the oil-exporting countries may have been a unique historical phenomenon, which came to an end with the onset of the world depression and the decline in oil prices at the beginning of the 1980s.² Thus from the peak in 1981-82 through 1988-89, Saudi government revenues from petroleum fell by 78 per cent.³ The contraction of the Middle Eastern construction market was similarly dramatic: the value of new contracts decreased by 75 per cent, from \$51 billion to \$13 billion, from 1982 to 1987.⁴ By 1993, OPEC countries' oil revenues were lower, in terms of the purchasing power of the dollar, than they had been before the price increases of 1973.⁵

Even apart from the issue of the Persian Gulf countries' financial capacity to sustain their peak levels of construction, the attainment of "a certain degree of saturation for large infrastructure projects" has reduced the demand for projects to be built by First World firms.⁶ As one large Belgian construction firm put it: "We've built just about everything there...and now they have an airport every 50 kilometers with 10 flights a day and 15 to 20 harbor ports that are half empty."⁷ To be sure, wars such as those between Iraq and Iran and Iraq and Kuwait produce a desaturation that reignites solvent demand for the reconstruction of petrochemical facilities and infrastructure. Thus before the Iraqi invasion of Kuwait, Bechtel had been building near Baghdad a \$2 billion petrochemical complex "that could help in the manufacture of chemical weapons. Only seven months later...Kuwait awarded Bechtel a potentially rich contract to help manage reconstruction of the

¹Peter Behr, "Bechtel Bridging Financing Gap," *WPost*, Oct. 21, 1984, at K1 (Nexis).

²See Victor Zonana, "Builders' Megaprojects Fade with the Dreams of Oil-Rich Countries," *WSJ*, June 27, 1983, at 1, col. 6; Terry Povey, "Tougher Times for the Mega-Project," *FT*, Dec. 18, 1986, Survey sect. at 36 (Nexis).

³Calculated according to data in Saudi Arabia, Central Dept. of Statistics, *Statistical Year Book*, tab. 10-2 at 522 (1983); *id.*, tab. 10-2 at 554 (1988). The amounts were 324 billion and 71 billion riyals respectively.

⁴"The Top International Contractors," *ENR*, July 21, 1983, at 59; "The Top 250 International Contractors," *ENR*, July 7, 1988, at 40.

⁵Youssef Ibrahim, "Oil Prices, Plunging, May Not Have Hit Bottom," *NYT*, Sept. 13, 1993, at C1, col. 3, 6 (nat. ed.).

⁶"The Top International Contractors," *ENR*, July 17, 1980, at 42, 43 (quoting large West German construction firm).

⁷"The Top International Contractors," *ENR*, July 16, 1981, at 68, 73.

oil facilities devastated by Iraq.’⁸

The world construction market has been further constricted by the implementation of national economic plans in some Third World countries. Conceived in analogy to earlier programs of import substitution for First World manufactured products, they have promoted domestic construction industries, thus narrowing the scope of the international demand for construction services.⁹ “As countries develop, international contractors find it progressively more difficult to compete with domestic firms, as these become stronger, first in building construction, and at later stages in tasks of increasing complexity, such as roads, airstrips, canals, small dams.... In the more advanced developing countries foreign contractors now supply only highly specialized services....”¹⁰ The obverse side of world market-dependent Third World growth strategies has also severely limited the scope of very profitable undertakings for multinational firms. The increasingly large shares of national income required to service the enormous international debt incurred in unsuccessfully implementing those strategies have reduced the solvent demand for additional large projects.¹¹

Cost-Cutting in the Metropoles: Flexibility and Antiunionism

Since...the world market does not exist outside the national spaces of reproduction, but rather as form of motion of capital in them, the contradictions...and crises necessarily reproduce themselves at the national level....¹²

This drastic contraction in the world market during the 1980s, which compressed “the individual business cycles” of the industrial sub-markets of geographically diversified firms into “the same cycle,” markedly altered multinational firms’ profit-maximizing strategies, depriving them of one kind of “flexibility” and imposing another.¹³ Thus in the 1970s, Bechtel’s huge staff of engineers and other professionally trained employees was said to be its “most valuable...asset,” which permitted the firm the flexibility to assign 500 engineers to a new project immediately without interfering with ongoing projects.¹⁴ Within a few years, however, worldwide depression induced Bechtel to administer an object lesson to those very engineers concerning their own flexibility in the labor market: “When a world-wide slump started hammering it in the mid-1980s...Bechtel discharged 22,000 of its 44,000 professionals, generally with little or no severance pay. By so doing...it avoided losses....”¹⁵ Bechtel also reduced

⁸G. Zachary & Susan Faludi, “Bechtel, Hurt by Slide in Heavy Construction, Re-Engineers Itself,” *WSJ*, May 28, 1991, A1, at col. 6, at A16, col. 1. See also “Iran and Iraq Bracing for Contractor Invasion,” *BW*, Aug. 4, 1988, at 14; “Top International Constructors,” *ENR*, July 18, 1985, at 54.

⁹National Research Council, *Building for Tomorrow: Global Enterprise and the U.S. Construction Industry* 17-18 (1988). On import substitution strategies, see Wolfgang Schoeller, *Weltmarkt und Reproduktion des Kapitals* 224-34 (1976); Celso Furtado, *Formação econômica do Brasil* 186-222 (12th ed. 1974); Raúl Prebisch, *Transformación y desarrollo: La gran tarea de la América Latina* 115-18 (1970).

¹⁰The World Bank, *The Construction Industry: Issues and Strategies in Developing Countries* 30 (1986 [1984]). See also “Introduction,” in *The Global Construction Industry: Strategies for Entry, Growth and Survival* 1, 4-5 (W. Strassmann & Jill Wells ed., 1988).

¹¹See generally Elmar Altvater, *Sachzwang Weltmarkt: Verschuldungskrise, blockierte Industrialisierung und ökologische Gefährdung: Der Fall Brasilien* (1987).

¹²Altvater, *Sachzwang Weltmarkt* at 79.

¹³“Bechtel: Fending Off the Recession by Hitting the ‘Small Time,’” *BW*, Mar. 7, 1983, at 54, 58.

¹⁴Dan Cordtz, “Bechtel Thrives on Billion-Dollar Jobs,” *Fortune*, Jan. 1975, at 90, 142.

¹⁵Zachary & Faludi, “Bechtel, Hurt by Slide, in Heavy Construction, Re-Engineers Itself” at 1, col. 1. See also Philip Kohn, “Engineering Firms Adopt a Survival Strategy,” *ChE*, Oct. 18, 1982, at 45 (Nexis); “Shrinking Bechtel Matches Work,” *ENR*, Aug. 1, 1985, at 66.

the total number of its technical and manual employees from 102,000 in 1980 to 30,900 in 1991.¹⁶ Although Bechtel's extraordinary world market dependence caused it to implement especially drastic mass dismissals, other multinational firms such as Brown & Root, Fluor, and Holzmann also discharged up to half their employees during the depression of the 1980s.¹⁷

The new flexibility, at least with regard to international projects, entails passing risk on to others by entering into subcontracts with smaller entities and hiring engineers from the Third World at much lower cost on a project-by-project basis.¹⁸ Multinational firms have also been forced to cope with the loss of overseas markets by having recourse to much smaller domestic projects, as large domestic firms have traditionally done during depressions.¹⁹ At the height of U.S. international hegemony, "20th century pyramid-builders" such as Bechtel, Fluor, and Morrison Knudsen "would barely consider projects with price tags below a billion dollars."²⁰ In the meantime, however, Bechtel, for example, has been compelled to take contracts as small as \$90,000 in order to valorize the capital it accumulated overseas; yet it is precisely that enormous "overhead" that causes it to make "little money on many small contracts."²¹ It is a multidimensionally telling commentary that prison construction has become one of the markets with "strong potential" for the world's largest industrial builders such as Bechtel, Fluor, and Holzmann.²²

Multinational firms driven back into the U.S. market by world market depression have discovered that they can reduce their labor costs by "hiring more non-union workers"²³ just as they sought out non-U.S. projects in the beginning of the 1970s to offset lagging domestic demand. Achievement of this cost-cutting goal has impelled even the largest unionized firms to join the so-called open-shop or merit-shop movement, which had been decimating union ranks since the early 1970s.²⁴

¹⁶Michael Kolbenschlager, "Bechtel's Biggest Job—Constructing its Own Future," *Forbes*, Dec. 7, 1981, at 138; *1991 Bechtel Report to Employees 5* (n.d.). Since the value of the contracts secured by Bechtel almost doubled during this period, Bechtel may have achieved this extraordinary reduction in part through increased reliance on contract management services and by converting employees into alleged independent contractors.

¹⁷Moody's Investors Service & U.N. Centre on Transnational Corporations, *Directory of the World's Largest Service Companies* 203, 208, 233 (Series 1—1990).

¹⁸Behr, "Bechtel Bridging Financing Gap"; Herbert Northrup & Margot Malin, *Personnel Policies for Engineers and Scientists: An Analysis of Major Corporate Practices* 212, 259 (1986 [1985]); telephone interview with Gary Hunt, Morrison Knudsen Co. (Boise, Idaho, Feb. 18, 1993).

¹⁹Zachary & Faludi, "Bechtel, Hurt by Slide in Heavy Construction, Re-Engineers Itself"; "The Shrinking World of U.S. Engineering Contractors," *BW*, Sept. 24, 1984, at 84; "Bechtel: A Builder Moves Into Financing and Operations," *BW*, Oct. 22, 1979, at 119; Peter Cassimatis, "The Performance of the Construction Industry, 1946-1965," at 161, 295-96 (Ph.D. diss., New School for Social Research, 1967).

²⁰Thomas Hayes, "Big Builders Learn to Think Small," *NYT*, July 28, 1985, sect. 3, at 1, col. 5 (Nexis).

²¹Zachary & Faludi, "Bechtel," at A16, col. 1-2.

²²"The Top 400 Contractors," *ENR*, May 25, 1989, at 38-39 (quoting official of Fluor Daniel). See also Hayes, "Big Builders Learn to Think Small" (Bechtel builds county jail); "Florida Seeks Jail Developers," *ENR*, Sept. 14, 1989, at 53 (joint venture of Becon Construction Co., the non-union subsidiary of Bechtel, and Wackenhut Services Inc.); Zonana, "Megabuilder Bechtel"; Zachary & Faludi, "Bechtel," at A16, col. 1-2; "Tougher Times in Prisons: Fierce Competition for Work Helps Correction Agencies Stretch Prison Dollars," *ENR*, June 15, 1992, at 28; Philipp Holzmann Aktiengesellschaft, *Geschäftsbericht 1992*, at 33 (1993) (Holzmann's U.S. subsidiary Jones received orders for building penal facilities in the South).

²³Hayes, "Big Builders Learn to Think Small."

²⁴Bill Paul, "Nonunion Contractors Winning Sizable Share of Construction Work," *WSJ*, July 7, 1972, at 1, col. 6; "Open Shops Build Up in Construction," *BW*, Aug. 1, 1972, at 14; "Nonunion Firms Get an Increasing Share of Construction Work," *WSJ*, Dec. 18, 1975, at 1, col. 6; Herbert Northrup & Howard Foster, *Open Shop Construction* (1975); John Trimmer, "ABC: Profile of Philosophy," *MSC*, Jan. 1976, at 15; "Open-Shop Construction Picks Up Momentum," *BW*, Dec. 12, 1977, at 108; Gilbert Burck, "A

In the mid-1970s, the internationally oriented petrochemical and industrial process plant construction firms were, with the exception of Brown & Root—whose owners have a long antiunion history including the successful promotion of antilabor legislation in Texas²⁵—members of the National Constructors Association (NCA). The most significant construction employers organization to emerge from World War II, the NCA was founded in 1947 by twenty-one of the largest firms engaged in oil refinery and steel and chemical plant building “to head off potential chaos threatened by the end of wage stabilization after World War II” through local and national collective bargaining.²⁶ The perceived need “to improve field labor relations” that gave rise to the NCA coincided with the establishment of labor-relations departments by the national construction firms, which had been necessitated by the increasingly large size of the projects built during and after the war.²⁷

By 1974 the NCA’s forty-two members accounted for eight of the ten largest nonresidential construction firms and 45 per cent of the value of all domestic and 67 per cent of that of all overseas contracts awarded to the 400 largest U.S. firms. Conversely, more than two-fifths of NCA members’ total construction volume derived from international projects.²⁸ This heavy reliance on world market projects associated with cheap labor may in part explain these firms’ initially relatively open attitude towards construction unions within the United States. Given the small number of firms competing in this subsector and the relatively inelastic demand for their products by U.S. domestic industrial consumers, which were often primarily interested in early completion dates made possible by the absence of strikes, the NCA firms’ competitive focus on the uniformity of wages among members rather than on the absolute wage level was strategic. This hypothesis is supported by the fact that the president of the AFL-CIO Building and Construction Trades Department, Robert Georgine, “expressed a willingness to view the subject of government support of multinational construction firms with an open mind.”²⁹

As antiunion firms expanded the scope of their operations from housebuilding in rural areas and the South and Southwest to industrial building in the North, however, NCA members’ position towards unions hardened. Whereas in 1965 seven NCA members accounted for 69 per cent of the total domestic contracts awarded to *ENR*’s ten largest firms, by 1975 this share had declined to 41 per cent. The “open shop” share rose during this period from one-seventh to three-fifths.³⁰ As early as 1973, the NCA, which at that time operated “100% union” within the United States, implicitly threatened that unless unions were

Time of Reckoning for the Building Unions,” *Fortune*, June 4, 1979, at 82; Clinton Bourdon & Raymond Levitt, *Union and Open-Shop Construction: Compensation, Work Practices, and Labor Markets* (1980); Herbert Northrup, *Open Shop Construction Revisited* (1984); Steven Allen, “Declining Unionization in Construction: The Facts and the Reasons,” 41 *ILRR* 343 (1988).

²⁵“Roadbuilders with a Flair for Other Jobs,” *BW*, May 25, 1957, at 90, 106.

²⁶“NCA Increases the Pressure to Cut the Fat Out of Labor Costs,” *ENR*, Mar. 1, 1973, at 18. See also John Dunlop & Arthur Hill, *The Wage Adjustment Board: Wartime Stabilization in the Building and Construction Industry* 43, 47 (1950).

²⁷*To Amend the National Labor Relations Act, 1947, with respect to the Building and Construction Industry: Hearings Before the Subcomm. on Labor and Labor-Management Relations of the Senate Comm. on Labor and Public Welfare*, 82d Cong., 1st Sess. 126, 126, 128 (1951) (NCA folder submitted in evidence by its vice-president, J. O’Donnell) (quotation); *A Company of Uncommon Enterprise: The Story of the Dravo Corporation 1891-1966*, at 91 (1974); Daniel Mills, “Factors Determining Patterns of Employment and Unemployment in the Construction Industry of the United States,” at 21 (Ph.D. diss., Harvard University, 1967).

²⁸“NCA Increases the Pressure to Cut the Fat Out of Labor Costs” at 18; “NCA Members Ply the World and Find Jobs on Every Continent,” *ENR*, Dec. 5, 1974, at 14; *ENR*, Nov. 27, 1975, at 22-23.

²⁹“Construction to Prove Export Aid Need,” *ENR*, May 29, 1975, at 9-10.

³⁰“National Constructors Seek New Industrial Labor Pact,” *ENR*, Oct. 21, 1976, at 15.

amenable to productivity increases that rendered their members wages competitive with the lower wages of the nonunion sector, the NCA itself might be "going open shop."³¹

Beginning in the late 1960s, industrial capitalist construction consumers launched a multipronged attack against the labor unions with which NCA negotiated and whose members were employees of NCA firms. The favored medium for this campaign was *Fortune*, which in 1968 declared the building trades unions "[t]he most powerful oligopoly in the American economy," which, counter-intuitive though it might have seemed at the height of the Vietnam War, was "the single most important direct contribution to the current wage-price spiral." The following year *Fortune* editorially urged that "something drastic must be done to bring this conglomeration of monopolies back to economic reality before it wrecks us all." The macroeconomic catastrophe that the magazine feared was that the "exorbitant" wage increases gained through construction unions' "murderous bargaining power" would spread to industrial unions. The editors blamed the construction firms themselves for failing to unite in resistance, and endorsed efforts by industrial construction users to intervene.³²

The most infamous instance of alleged building trades union greed in the late 1960s was made possible by General Motors' rush order for construction of a plant for producing Vegas in Lordstown, Ohio. Because Ford had already begun production of its small automobiles, GM feared that delays might permanently endanger its share of this increasingly important submarket; GM was therefore willing to accept higher construction costs in order to expedite its entry into that market.³³ The wage increases associated with the sudden absorption of a large number of skilled workers and the extraordinary volume of planned overtime provided the occasion for *Fortune* to publish two pages of pictures of individual workers with captions detailing their purportedly outrageous \$10 to \$14 hourly wages.³⁴ Although the magazine censured GM for its role in this development, it was encouraged by the fact that GM had decided to "join...other major corporations whose aim is to support a tough stand by the contractors' associations at the bargaining table." These firms would "monitor all settlements in the construction industry and may chastise any company that forces a contractor to capitulate to the extreme demands of the building trades' unions."³⁵

In order to dispel any sympathies that often lead "Americans as consumers...sentimentally [to] take sides with the workers against the bosses," *Fortune* asserted that "[i]n construction...the real conflict is not between labor and capital, but between labor and consumers, with the employers serving as a medium for passing labor's exactions on to the public at large."³⁶ This ideological claim, which is favored when business conditions permit such shifting so that wage increases can be decried as the sole cause of higher consumer prices, loses its propagandistic value when the shifting becomes cyclically impossible and the ensuing profit squeeze in fact appears as a conflict between construction firms and

³¹"NCA Increases the Pressure to Cut the Fat Out of Labor Costs" at 18.

³²Thomas O'Hanlon, "The Unchecked Power of the Building Trades," *Fortune*, Dec. 1968, at 102; "Breaking Up a Labor Monopoly," *Fortune*, Sept. 1969, at 85, 86.

³³Although higher construction costs "are an especially important factor in international competition because the United States is forced to rely on modernizing and building new plants and equipment in order to offset the lower wage rates abroad," the amortization period may be so long and output so great that increased construction cost may increase final unit costs only insignificantly. M. Lefkoe, *The Crisis in Construction: There Is an Answer* 111-12 (1970).

³⁴Don Sider, "The Big Boondoggle at Lordstown," *Fortune*, Sept. 1969, at 106-109, 196. The magazine provided no hourly conversions of GM executives' incomes.

³⁵Sider, "Big Boondoggle" at 196.

³⁶Gilbert Burck, "The Building Trades versus the People," *Fortune*, Oct. 1970, at 95. See also Sylvester Petro, "Unions, Housing Cost and the National Labor Policy," 32 *LCP* 329 (1967).

their customers, industrial firms.

By the early 1970s, NCA members had begun to cooperate with the group that *Fortune* had been extolling—the Construction Users Anti-Inflation Roundtable/Business Roundtable, an organization of leading executives of the NCA's largest industrial customers.³⁷ These industries, and particularly the petroleum industry and power utilities sector, invested the greatest absolute amounts of capital in plant and structures. Because they were also the industries in which such outlays bulked largest in relation to their total fixed capital expenditures, they were peculiarly sensitive to increased construction costs.³⁸ Although it was unusual for customers to interfere with the way in which their suppliers operated their businesses, instead of buying elsewhere or vertically integrating into that industry, the Roundtable encouraged its members “to intervene in the affairs of suppliers who had lost control of their costs. Contractors soon saw that their long-term interests were served by the arrangement.”³⁹ The NCA had little alternative but to accommodate the Roundtable's cost-cutting antiunionism: constructors experienced the latter's argument that construction unions were a major factor contributing to cost pressures as an expression of their declining competitiveness.⁴⁰

Many firms' desire to eliminate unions and their members from construction sites was in part driven by an effort at belated implementation of a Taylorist program of scientific management, which overlapped with the Roundtable's agitation in favor of the “restoration of the management role in the construction industry.”⁴¹ One of Frederick Taylor's guiding tenets was “the very sad fact that almost every workman...who is engaged in anything like coöperative work, looks upon it as his duty to go slow,” whereas “[t]here is hardly any worse crime...than that of deliberately restricting output....”⁴² In order to reduce workers' power to exercise control over the process of production, Taylor articulated the need for management to wrest from its employees their “rule-of-thumb knowledge,” to systematize it, and to formulate and prescribe the new rules as components of managerial prerogatives. Tayloristic management also assumed the task of “scientifically” selecting its workers.⁴³

From the outset the open-shop movement aggressively albeit implicitly adopted this agenda. It replaced union journeymen, whose higher wages “embodied [self-]supervisory skills” that enabled them to work independently, with relatively well-paid managerial supervisors who “oversee many other workers

³⁷Pacific Studies Center, “Black Monday,” *Pacific Research & World Empire Telegram*, Nov.-Dec. 1969, at 18, 23; letter from Richard Kibben, Executive Director—Construction, Business Roundtable, to author (Mar. 23, 1976).

³⁸“Interindustry Transactions in New Structures and Equipment, 1967,” *SCB*, Sept. 1975, at 9, 10-11, 15-17, 21. The petroleum/natural gas industry was both the leading industrial consumer of structures and allotted the greatest share of its fixed capital expenditures to structures (four-fifths in 1967 compared with two-thirds for utilities and three-tenths for manufacturing as a whole).

³⁹“A Time of Reckoning for the Building Unions” at 88.

⁴⁰When accused of contributing to inflation, companies like Bechtel had their own methods for deflecting sanctions. Thus on George Shultz's last day in office as Secretary of the Treasury and chairman of the Cost of Living Council (CLC) before entering into Bechtel's employ, the CLC reduced by one-half a penalty that it had imposed on Bechtel for overcharging clients. Conveniently for Bechtel, President Nixon had appointed its owner to the Labor-Management Advisory Committee, which advised the CLC. “Shultz Joins Bechtel Executive Staff,” *ENR*, May 16, 1974, at 38; “Wrongdoing Denied in a Bechtel Case,” *ENR*, May 30, 1974, at 9.

⁴¹Business Roundtable, *Coming to Grips with Some Major Problems in the Construction Industry* 51-57 (1975 [1974]).

⁴²Frederick Taylor, “The Principles of Scientific Management,” in *Scientific Management: Addresses and Discussions at the Conference on Scientific Management, held October 12, 13, 14, 1911*, reprinted in *1 Some Classic Contributions to Professional Managing: Selected Papers* 37, 38, 40 (1956).

⁴³*Id.* at 44-46.

who have lesser skills and are lower paid."⁴⁴ This transition could best be effected on the personnel level by hiring "a new breed of workers whose goals and needs are substantially different from those of the previous generation. No longer...are young men interested in job and economic security. Rather...they view work as a necessary evil or a means toward achieving other self-oriented goals."⁴⁵ Once wages were restored to a central place in interfirm competition, the race to the bottom quickened. Although at first a firm could "increase its profit margin by going non-union and bidding against union firms," once its competitors "are also open-shop operators," it will "feel pressured to further reduce worker wages and benefits, increase productivity and lower...profit margins to underbid other non-union firms." At the end of this irresistible and irrational spiral, then, the firm's "profit margin is no better than when the industry was an all-union operation."⁴⁶

As early as 1980, even Bechtel, the NCA's largest member, had succumbed to this logic and inaugurated so-called double-breasted operations—in which one owner operates two firms, one unionized and the other nonunion—by acquiring Becon Construction Company of Houston, a nonunion firm which had been formed two years earlier by former Bechtel employees as an open-shop firm. Although one of the "less often mentioned" reasons for forming the holding company, Bechtel Group, Inc., was to keep it "well apart from the rest of the organization, which [wa]s covered by extensive union agreements, the firm publicly stated that Bechtel could perform engineering on the projects for which Becon did the construction." This nonunion entity was intended to enable Bechtel to compete in Sunbelt "areas where open shop construction competition has flourished." Yet soon Becon was competing with two leading world market firms, nonunion Brown & Root and Fluor Daniel, in the Northwest, where it built a \$40-million project for Weyerhaeuser. And although Bechtel asserted that Becon did not signal a departure from Bechtel's traditional union orientation, especially since its operations were relatively small, by 1982 Becon was already the forty-fourth largest construction firm in the United States; its half-billion dollars in contract awards amounted to almost one-third of Bechtel's domestic total for that year.⁴⁷

Nor was Bechtel alone in this transition to nonunion operations. Unable to persuade the National Labor Relations Board or the federal appellate courts that the common owner of the nonunion firm in double-breasted operations was per se violating its duty to bargain collectively, building trades unions tried but failed to induce Congress to remove this significant obstacle to reunification of the construction industry.⁴⁸ Thus by 1987, NCA membership had dwindled to thirteen firms. Nevertheless in 1992, twelve of its sixteen members still ranked among the twenty-two largest U.S. firms and five ranked among the ten largest in terms of overseas contracts.⁴⁹

⁴⁴Boudon & Levitt, *Union and Open-Shop Construction* at 48-49; Leslie Berkman, "Construction Unions Try to Stem Job Losses," *Los Angeles Times*, Mar. 16, 1986, pt. 4, at 1, col. 1 (Nexis).

⁴⁵"The Open Shop Voice Grows Loud and Clear," *ENR*, Nov. 27, 1969, at 44, 45.

⁴⁶Berkman, "Construction Unions Try to Stem Job Losses."

⁴⁷"Bechtel's Dance of the Seven Veils," *Economist*, May 16, 1981, at 93; "Bechtel to Purchase Open Shop Contractor," *ENR*, Jan. 8, 1981, at 53; "Becon Upbeat: Nonunion Builder Expects Workload to Grow by 50%," *ENR*, Feb. 20, 1986, at 59; "The Top Four Hundred Contractors," *ENR*, Apr. 28, 1983, at 64, 69, 72. Because *ENR* during the 1980s listed Becon independently as one of the 400 largest contractors despite indicating that it was a Bechtel subsidiary, the data in table 11.3 for the ten or four largest firms should be adjusted slightly. Although Fluor maintains collective bargaining agreements with unions, Fluor Daniel does not.

⁴⁸29 U.S.C. § 158 (a)(5) (1988). The House of Representatives passed the Construction Industry Labor Law Amendments Act in 1986, but the Senate failed to vote on it. H.R. 281, 99th Cong., 2d Sess., 132 *CR* 7875-76 (1986). The bill has been refiled as H.R. 114, 103rd Cong., 1st Sess., 139 *CR* H103 (Jan. 6, 1993). See generally Stephen Belfort, "Labor Law and the Double-Breasted Employer: A Critique of the Single-Employer and Alter-Ego Doctrines and a Proposed Reformulation," 1987 *WLR* 67.

⁴⁹"NCA Sheds its President," *ENR*, June 4, 1987, at 51; NCA, "1992 Directory of Membership."

Accumulation and the Transnational Centralization of Capital

The world has become Steve [Bechtel]'s office table; a big chunk of the petroleum, steam power and atomic power industries, his erector set.⁵⁰

Even if the OPEC boom has definitively petered out, its internationalizing impact has survived.⁵¹ The enormous size of the Middle East projects, which precluded competition from smaller firms, and the corresponding level of profits, which, when capitalized, created a new segment of firms, initiated a process that has become detached from its source. As the business press recognized at the height of the boom, the "lure" of "[g]reater profit margins" abroad has made the larger firms increasingly dependent on types of projects that are not inexhaustible. "As a consequence, many competitors fear that the heavy-construction industry is growing so fat through the new ambitions of the energy-rich countries that neither the developing world nor the industrial nations will be able to feed it adequately in the future."⁵²

This shrinking market with its concomitant sharp price competition has made visible the operation of the laws of capital accumulation in an industry that some observers are still inclined to regard as standing outside that regime.⁵³ Thus some construction industry specialists argue that, because industrial consumers demand unique products, there are few scale economies in construction; consequently concentration of capital confers no special advantage with regard to production techniques. This claim, however, is inconsistent with these authors' own admission that firm-size operates to fashion a hierarchy of firms according to market segment, leaving large projects to large companies with "economic power and technical know-how."⁵⁴ It is also at odds with trade reports that "mergers and acquisitions were the driving force behind the increased totals for many individual contractors and nationality groups."⁵⁵

This technological stratification is exemplified by Stone & Webster, which on the basis of its proprietary processes has engineered olefins plants accounting for 35 per cent of world capacity. Other firms such as Kellogg, based on patented or proprietary processes and technology for synthetic ammonia, ethylene, and liquified natural and petroleum gas processing, and Impianti in seamless steel pipes, "seem to get all the contracts for certain types of installations, suggesting virtual monopolies."⁵⁶ Virtual duopoly characterizes the market for offshore-oil construction, in which in the late 1970s, two U.S. firms, Ray McDermott & Co.,

⁵⁰Neill Wilson & Frank Taylor, *The Earth Changers* 288 (1957).

⁵¹Michael Ball, *Rebuilding Construction: Economic Change and the British Construction Industry* 36-37 (1988), overlooks this impact while failing to explain why construction differs from other industries in opening the way to foreign firms "only...when there is a lack of indigenous...technology and management skills...."

⁵²"Where the Constructors Strike it Rich," *BW*, Aug. 23, 1976, at 51, 47, 56. For an examination of the dependence of West German firms on the world market, see the report on Philipp Holzmann AG in *NZZ*, Mar. 12, 1977, at 14, col. 3. On the quondam hope for a new source of inexhaustibility, see "Middle East: A Big Housing Market Begins to Pay Off," *BW*, June 30, 1975, at 43-44.

⁵³National Research Council, *Building for Tomorrow* at 49. Strassmann, "The United States," in *Global Construction Industry* at 22, 28, for example, finds that "[o]ddly enough" the concentration ratio "actually" rose "as competition increased with declining business."

⁵⁴Helen Rainbird & Gerd Syben, "Introduction," in *Restructuring a Traditional Industry: Construction Employment and Skills in Europe* 1, 6-7 (Helen Rainbird & Gerd Syben ed., 1991).

⁵⁵"The Top 250 International Contractors," *ENR*, July 13, 1989, at 42.

⁵⁶"Conclusion: Comparison and Analysis," in *The Global Construction Company* at 211, 223; National Research Council, *Building for Tomorrow* at 21; [Brown & Root], *Brownbuilder*, No. 1, 1992, at 11; William Allen, *Stone & Webster: A Century of Service* 20-21 (1989); Stone & Webster, Inc., *1991 Annual Report to Stockholders* 5 (1992); Stone & Webster, "Burgeoning Workload in the Pacific Rim" (n.d.).

which pioneered the building of huge superstructures on land for use in the Gulf of Mexico, and Brown & Root, accounted for 78 per cent of the world market. Their returns were a "phenomenal" 20 to 25 per cent profit margins. A suit by the U.S. Department of Justice forced the owner of Brown & Root, Halliburton Corporation, to divest itself of Ebasco Services, which it had acquired in 1973, because the acquisition would have reduced competition in power plant construction. By the early 1990s, Brown & Root was still "involved in the design and fabrication of 35% of the world's offshore production capacity."⁵⁷

A similar pattern prevails in U.S. nuclear reactor construction. Bechtel's domination of this subsector has been traced back to the fact that John McCone, the chairman of the Atomic Energy Commission—which was responsible for overseeing construction of commercial plants—during the crucial start-up period from 1958 to 1961, was a former partner of Bechtel.⁵⁸ As a result of this relationship, Bechtel "got the jump on the rest of the industry in the power business, at one point taking 80 to 85% of [its] income from that market."⁵⁹ As of 1981, Bechtel had built 44 per cent of the seventy-five nuclear plants operating in the United States. By 1991 it still maintained "a presence" at more than 40 percent of U.S. nuclear stations. Together with Stone & Webster, United Engineers & Constructors (a subsidiary of Raytheon), and Ebasco Services, it has built 80 per cent of the nuclear plants in the United States.⁶⁰

As these examples suggest, firms commonly specialize in international submarkets which reflect their technological strengths in their domestic markets. Thus, for example, Dutch firms specialize in dredging and land reclamation, Japanese in high-speed railroads, French in nuclear power plants, Italian in hydroelectric dams, Finnish in pulp and paper mills, and Swiss and Austrian in tunneling.⁶¹

The laws of capital accumulation have asserted themselves with greater force since the late 1970s. The transnational centralization of capital in the "highly oligopolistic" international construction industry,⁶² the competitive interpenetration of the domestic markets in the advanced capitalist countries, the increasing necessity for sellers to grant credit to buyers, and the "development of a world market for all types of construction materials" all testify to the emergence of a world market in construction.⁶³ This interpenetration within construction mirrors the general "inter-triad" multinational corporate investment among the United States, Japan, and the European Community, which has become the most dynamic aspect of the world economy since the 1980s.⁶⁴ In order to support the

⁵⁷"Right Place at Right Time—and Lucky," *ENR*, May 8, 1958, at 78; John Huey, "Antitrust Investigation Could Reshape Makers of Offshore-Oil Gear," *WSJ*, July 6, 1978, at 1, col. 6; Shawn Tully, "The Mismatched Merger That Worked," *Fortune*, Apr. 19, 1982, at 166; "The 400," *ENR*, Apr. 12, 1973, at 46; *id.*, May 20, 1976, at 151; Brown & Root, *A World of Services* 18 (n.d. [ca. 1992]).

⁵⁸See Richard James, "For a Family Concern, Bechtel Group Works on Enormous Projects," *WSJ*, Apr. 10, 1979, at 1, col. 6, at 24, col. 2; Robert Ingram, *The Bechtel Story: Seventy Years of Accomplishment in Engineering and Construction* 11, 82 (1968). See also chapter 8 above.

⁵⁹"Bechtel Reorganization Tips Off Market Push," *ENR*, Dec. 11, 1980, at 20, 21.

⁶⁰Kolbenschlag, "Bechtel's Biggest Job—Constructing its Own Future" at 138; "Construction Unions, Contractors Agree to Cut Labor Strife at Nuclear Plant Sites," *WSJ*, Apr. 19, 1978, at 14, col. 2; *1991 Bechtel Report to Employees* at 15.

⁶¹Jim Antoniou, *Construction in the Middle East* 60 (1978); OECD, *Globalisation of Industrial Activities: Four Case Studies: Auto Parts, Chemicals, Construction and Semiconductors* 114 (1992); Stephen Drewer, "Scandinavia," in *Global Construction Industry* at 160, 169.

⁶²Barney Warf, "The International Construction Industry in the 1980s," 43 *PG* 150, 151 (1991).

⁶³Steven Setzer, "Materials Markets Going Global," *ENR*, Mar. 29, 1993, at 31 (quotation); "Financial Engineering Wins Jobs," *ENR*, Aug. 2, 1984, at 28; "Introduction," in *The Global Construction Industry* at 5-6. On the connection between credit and competition, see Karl Marx, I *Das Kapital: Kritik der politischen Ökonomie* 611-13 (1867).

⁶⁴United Nations Centre on Transnational Corporations, *World Investment Report 1991: The Triad in Foreign Direct Investment* 36-44 (1991).

increasingly crucial financial side of its large-scale operations, Bechtel, which, had it not been the largest privately owned company in the United States, would have ranked twenty-first on the Fortune 500 list, even bought the investment banking firm of Dillon, Read in 1981.⁶⁵

Large international construction firms, confronted with a plethora of fixed capital assets,⁶⁶ are in the process of unleashing a further round of internationalization by competing for one another's hitherto relatively sheltered domestic markets in order to amortize their capital.⁶⁷ Beginning in the 1970s, the largest Japanese builders, for example, reproducing the U.S. construction firms' model of forming "client-contractor 'alliances' with U.S.-based multinational firms planning production facilities abroad,"⁶⁸ followed in the wake of their Japanese manufacturing customers and began constructing the latter's factories in the United States. Ohbayashi's construction of Toyota's plant in Kentucky and Kajima's construction of Mazda's in Michigan in the 1980s were only the most prominent examples. They also raise the possibility of the existence of noneconomic aspects of such Japanese-Japanese relationships between construction and industrial firms overseas inasmuch as the former commonly function merely as general contractors or project managers. Relying on U.S. subcontractors to carry out the actual construction, Japanese constructors in the United States assert that: "Construction is a local business and you have to hire local tradespeople to be cost effective."⁶⁹ Even more interestingly, those "tradespeople" often turned out to be the nonunion subsidiaries of the Japanese firms' largest international competitors such as Bechtel and Fluor.⁷⁰ Only after a protracted struggle with U.S. construction unions did Ohbayashi, for example, abandon its choice "to do business the American way—merit shop."⁷¹

Building projects for Japanese manufacturing, trade, and service corporations abroad have continued to form the bulk of Japanese construction firms' worldwide operations.⁷² Japanese construction firms, however, have also begun to carry out urban development projects in the United States, Australia, and even the People's Republic of China involving office buildings, hotels, and houses.⁷³

⁶⁵"Bechtel's Dance of the Seven Veils"; "Construction's Man of the Year: Stephen D. Bechtel, Jr.," *ENR*, Feb. 21, 1974, at 30, 32; Victor Zonana, "Megabuilder Bechtel Tries to Stay on Top by Being Aggressive," *WSJ*, Oct. 16, 1984, at 1, col. 6; "Dillon Read's Managers to Buy Control from Bechtel, Which Will Retain a Stake," *WSJ*, Mar. 8, 1983, at 2, col. 3. In 1991, Bechtel was the eighth largest privately held company. Ronald Henkoff, "Inside America's Biggest Private Company," *Fortune*, July 13, 1992, at 83, 87.

⁶⁶On underutilization of construction capital equipment, see "Factory Builders Find Slim Pickings," *BW*, July 24, 1978, at 51-52.

⁶⁷See Rhonda Rundle, "Rising Sun May Be Too Hot for U.S. Contractors," *WSJ*, Jan. 15, 1988, § 1, at 22, col. 3; "The Top 400 Contractors," *ENR*, May 25, 1989, at 39; Kolbenschlag, "Bechtel's Biggest Job" at 139.

⁶⁸"Foreign Markets Rev Up As Domestic Ones Slow," *ENR*, May 24, 1990, at 38, 39. "Multinational manufacturing enterprises establishing a plant abroad commonly reserve the work to a compatriot contractor with whom they have had past experience." "Conclusion: Comparison and Analysis," in *Global Construction Industry* at 211, 222.

⁶⁹Marla Dickerson, "Kajima Builds Up Its Reputation," *Detroit News*, Jan. 21, 1991, sect. F, at 1 (Nexis) (quotation); "Conclusion: Comparison and Analysis" at 250.

⁷⁰Becon and Daniel were major contractors at the Toyota plant. Jay Kraker, "Toyota Plant Plows Ahead with No Sign of Union Pact," *ENR*, Nov. 27, 1986, at 65; Kenneth Noble, "Toyota Agrees on Union Workers to Construct a Plant in Kentucky," *NYT*, Nov. 26, 1986, at B8, col. 1.

⁷¹"Construction Unions Urged to Stop 'Bullying' Toyota," PR Newswire, Nov. 17, 1986 (Nexis) (telegram from Associated Builders and Contractors Inc. to Toyota).

⁷²See Lisa Martineau, "Making Inroads Overseas," *FT*, Dec. 18, 1986, Survey sect. at 37 (Nexis); Fumio Hasegawa, *Built by Japan: Competitive Strategies of the Japanese Construction Industry* 82-83, 148-50 (1988); Sidney Levy, *Japanese Construction: An American Perspective* 2, 9-16, 126 (1990); "The Top 250 International Contractors: Instability Slows Growth Abroad," *ENR*, July 22, 1991, at 30-31.

⁷³Hasegawa, *Built by Japan* at 148-50.

The growing force of the world market can be gauged by the fact that international centralization of capital has overtaken national centralization as a vehicle of internationalization. The international accumulation of construction capital has, several decades after similar movements in the extractive and manufacturing industries, finally assumed the form of the international centralization of capital.⁷⁴ Refuting the older view according to which "the construction firm...is rarely bought or sold as a unit because it does not generally possess intangible assets, such as location, patents, or a steady clientele,"⁷⁵ large European construction firms, in a pattern familiar from earlier international industrial capital movements to the United States,⁷⁶ began in the late 1970s to acquire U.S. firms for the purpose of competing in the United States.⁷⁷ The collapse of the OPEC boom hastened this process especially for firms that had relied heavily on the Middle East market. Thus, for example, almost 90 per cent of West German firms' \$30 billion in orders between 1974 and 1983 originated in oil-exporting countries—Saudi Arabia alone accounting for one-half. It came as no surprise, then, that German firms undertook to diversify their markets geographically.⁷⁸

In the absence of new orders in Saudi Arabia, West German firms began buying their way into the U.S. market. In 1978, Bilfinger & Berger Bau AG acquired the fortieth largest U.S. construction firm, Fru-Con. The next year, the largest West German firm, Philipp Holzmann AG, reoriented itself on the world market by acquiring the then thirteenth largest U.S. firm, J. A. Jones Construction Company. Holzmann proceeded to acquire others in the 1980s. By 1991, North America accounted for more than a quarter of German firms' international contracts—more than the Middle East and the Third World combined.⁷⁹

More major mergers with U.S. firms followed. Shimizu, the largest Japanese firm, acquired 45 per cent of Dillingham, the fifteenth largest U.S. firm in 1987; Tobishima Corporation acquired 48 per cent of George A. Fuller Company, the forty-fourth largest firm, in 1988.⁸⁰ The same year, the British firm Davy, the then-largest international contractor, acquired Dravo, which had been the thirty-first largest firm in the United States in 1986. The next year the Swedish-

⁷⁴See *National Interests in an Age of Global Technology* 31-32 (Thomas Lee & Proctor Reid ed., 1991); Ernest Mandel, *Der Spätkapitalismus* 292 (1973 [1972]).

⁷⁵Benjamin Kaplan, "Profile of the Contract Construction Industry," *CRev*, Feb. 1957, at 4, 5. By the same token, however, this older view may well explain why U.S. construction firms have engaged in relatively little direct investment in Third World countries. See U.S. Office of Business Economics, *U.S. Business Investments in Foreign Countries: A Supplement to the Survey of Current Business*, tab. 6 at 94 (1960); *idem*, *U.S. Direct Investments Abroad 1966, Pt. I: Balance of Payments Data*, tab. A-6 at 50 (1970). More recently, multinational firms have established subsidiaries overseas in order to compete for contracts in countries that award them only to domestic firms. See U.N. Centre on Transnational Corporations, *Transnational Corporations in the Construction and Design Engineering Industry* at 11.

⁷⁶See generally Norman Glickman & Douglas Woodward, *The New Competitors: How Foreign Investors Are Changing the U.S. Economy* (1990 [1989]).

⁷⁷See "Overseas Firms Closing in on U.S.," *ENR*, Aug. 2, 1984, at 10; "Foreigners Step Up U.S. Invasion," *ENR*, Nov. 27, 1986, at 12-13.

⁷⁸Erich Gluch & Jürgen Riedel, "The Federal Republic of Germany," in *Global Construction Industry* at 120, 124-25.

⁷⁹National Research Council, *Building for Tomorrow* at 81-84; *BW*, Sept. 18, 1978, at 49; Gluch & Riedel, *The Federal Republic of Germany* at 127-28; "Both Partners Work for Successful Marriage: Phillip Holzmann and J. A. Jones are Spreading Out," *ENR*, June 3, 1982, at 30; Philipp Holzmann Aktiengesellschaft, *Geschäftsbericht 1992* at 19, 79; Hauptverband der Deutschen Bauindustrie, *BJ 1992* at 36.

⁸⁰"Shimizu Leads Dillingham Buyout," *ENR*, June 4, 1987, at 50; *ENR*, May 12, 1988, at 30; "The Top 250 International Contractors," *ENR*, July 13, 1989, at 42, 45. These acquisitions marked a departure from the large Japanese firms' pattern of starting their own subsidiaries in the United States. See Steven Setzer & Richard Korman, "Are They Better? Japanese Bring More Than Money in Their Quest for U.S. Market Share," *ENR*, Mar. 3, 1988, at 30.

Swiss electrotechnical conglomerate Asea Brown Boveri acquired Lummus Crest, the eighth largest U.S. construction firm.⁸¹ This centralization movement spread even into residential construction at the beginning of the 1980s when the British firm Barratt became one of the largest housebuilders in California by buying American National Housing Corporation and McKeon Construction.⁸²

Consequently, whereas until the 1980s "there was virtually no foreign ownership of U.S. construction firms," a decade later "15 of the largest 100 contractors on ENR's Top 400 list are totally or partially owned by foreign interests."⁸³ Within a few years, these largely German, British, and Japanese firms amassed more than 70,000 employees, almost \$10 billion in assets, and \$14 billion in sales. In spite of this unprecedented development, however, they still lag far behind their manufacturing counterparts in penetrating the U.S. market. Whereas the latter employ almost 11 per cent of manufacturing workers in the United States, non-U.S.-owned firms employ only one per cent of all U.S. construction workers.⁸⁴

Nevertheless, the surplus in the U.S. international balance of payments for construction services has been reduced. Prior to the 1980s, non-U.S. construction firms' activities in the United States were so minimal that they were not even identified in the U.S. balance of payments statistics. Since the mid-1980s, however, official but fragmentary data suggest that payments to non-U.S. firms and U.S. affiliates of non-U.S. firms for construction services in the United States have begun to approach the receipts of U.S. firms for construction services performed outside the United States.⁸⁵ Thus from 1980 to 1988 the value of contracts

⁸¹"Davy Pittsburgh Sets Sights on Growth," *Allegheny Business News*, Feb. 1991, sect. 1, at 1 (Nexis); *ENR*, May 24, 1990, at 81; "ABB Group Sells Clean Technology," *ENR*, July 5, 1990, at 21.

⁸²Ball, *Rebuilding Construction* at 185; Joan Gray, "Specialized Approach to Markets," *FT*, Mar. 5, 1984, § III, at III.

⁸³"The Top 250 International Contractors: Instability Slows Growth Ahead," *ENR*, July 22, 1991, at 30, 35.

⁸⁴See Steve Bezirgian, "U.S. Affiliates of Foreign Companies: Operations in 1990," *SCB*, May 1992, at 45, 48, 59, 63, 65, tab. 6 at 52. For further indicators of the enormous gap between manufacturing and construction with regard to the size of foreign investment (in the United States and abroad) and income derived therefrom, see J. Landefeld, Ann Lawson, & Douglas Weinberg, "Rates of Return on Direct Investment," *SCB*, Aug. 1982, at 79, tab. 17 at 113-14; "U.S. Direct Investment Abroad: Detail for Historical-Cost Position and Balance of Payments Flows, 1991," *id.*, at 116, tab. 18 at 143-44; Raymond Mataloni, Jr., "U.S. Multinational Companies: Operations in 1990," *SCB*, Aug. 1992, at 60, tab. 9.1 & 9.2 at 70-71.

⁸⁵Reliable figures are not available because the U.S. Department of Commerce publishes asymmetrical data: those for construction exports are net of merchandise exports and outlays for wages, materials, and other expenses, whereas import data are not netted. John Sondheimer & Sylvia Bargas, "U.S. International Sales and Purchases of Private Services," *SCB*, Sept. 1992, at 82, 116 n.1. The asymmetry derives from the fact that the Department of Commerce collects the import data not from the non-U.S. construction firm, but from the U.S. customer, which reports (on Form BE-20 or BE-22) the total amount (if in excess of \$500,000) paid for construction services to foreign firms (but not to U.S. affiliates of foreign firms). See U.S. Bureau of Economic Analysis [BEA], Form BE-20: Benchmark Survey of Selected Services Transaction with Unaffiliated Foreign Persons (Nov. 13, 1991); *idem*, Form BE-22: Annual Survey of Selected Services Transactions with Unaffiliated Foreign Persons (Oct. 21, 1992). On this basis, imports amounted to 35 per cent of exports for the years 1986 to 1991. Calculated according to data in Sondheimer & Bargas, "U.S. International Sales and Purchases of Private Services," tab. 2 at 83. If the "sales of services to U.S. persons by nonbank majority-owned U.S. affiliates of foreign companies" are included, imports actually exceeded exports by wide margins in 1989 and 1990: \$2,961,000,000 as against \$1,128,000,000 and \$1,687,000,000 as against \$916,000,000 respectively. Calculated according to data in *id.*, tab. 2 at 83, tab. 12.1-13.2 at 129-32. Presumably the distorting asymmetry also applies to these data, although the group responsible for processing the data at the BEA itself did not know. When confronted with the revelation of the asymmetry, the BEA responded by furnishing gross receipts for construction exports for the years 1987 through 1991 (whereby the BEA was, again, unsure whether they included data for foreign affiliates of U.S. firms). Although these data would show an excess of exports over imports in 1990 (\$2,647,000,000 versus \$1,687,000,000), they would still leave an implausible deficit for 1989 (\$1,917,000,000 versus \$2,961,000,000). Telephone interview with Sylvia Bargas (Feb. 2, 1993). A different series of (gross rather than net revenue) data for 1982 and 1983 indicated that U.S. revenues of foreign firms amounted to about half of foreign revenues of U.S. firms. U.S. Congress, Office of

awarded to non-U.S. firms for projects in the United States as a share of the value of overseas contracts awarded to U.S. firms rose from one-sixteenth to one-half (before falling again to one-fifth in 1991).⁸⁶

Nor has the international centralization movement been restricted to the United States. European firms have also acquired construction firms in other countries as well. Hochtief, for example, has acquired almost half of Leighton Holdings Ltd., the most important construction firm in Australia.⁸⁷ Spie Batignolles, one of the largest French firms, acquired an interest in Davy, one of the largest British firms. Both of these firms, which also acquired subsidiaries in the United States, have themselves been subject to centralization movements initiated by their largest domestic competitors—an unsuccessful hostile takeover by Bouygues in 1986 and acquisition by Trafalgar House in 1991 respectively.⁸⁸ In order to secure a base in central and Eastern European markets, in 1992 Trafalgar House, already Britain's largest international construction firm, acquired a half interest in the industrial process engineering companies of Austria's largest international construction firm, Voest-Alpine.⁸⁹

Cross-border construction within the European Community was still limited during the 1980s. As late as 1984, for example, the EC accounted for only two per cent of the value of new British overseas contracts. Yet in Western Europe, too, the "severe crisis" in overseas markets triggered interpenetration and an extensive national and transnational merger and acquisition movement: "European contractors are heading for a shakeout as they withdraw from traditional oil-fired overseas markets that are in deep recession because of oil price cuts. They are finding insufficient work at home and are looking for acquisitions to diversify themselves and to make all of Europe their 'domestic' market."⁹⁰ When demand declined in Northern European markets in 1987, construction firms from those countries entered into intensive competition with local firms for projects in Italy, Spain, Portugal, and Greece.⁹¹

As British firms' new contracts in the Middle East plummeted from £818 million in 1984 to £125 million in 1987, those that they obtained within the EC increased almost six-fold to £213 million. Thus while the share accounted for by the Middle East dropped from 36 per cent to a mere 5 per cent, the EC's share rose to 9 per cent.⁹² The geographic rediversification of the German construction

Technology Assessment, *Trade in Services: Exports and Foreign Revenues* tab. 15 at 60 (1986) (without a source or methodology).

⁸⁶Calculated according to data in James Lee & David Walters, *International Trade in Construction, Design, and Engineering Services*, tab. 2-4 at 27 (1989); "The Top 250 International Contractors," *ENR*, July 13, 1989, at 45; "The Top International Contractors," *ENR*, Aug. 24, 1992, at 36.

⁸⁷Hochtief, *Annual Report 1991*, at 31, 39 (1992); Heiner Radzio, *Die Aufgabe heisst Bauen: 110 Jahre Hochtief* 35 (1985). On Hochtief's acquisition of 50 per cent of Theiss Holding, Ltd., another Australian firm, see "Branching Out," *ENR*, Oct. 1, 1981, at 60.

⁸⁸Spie Batignolles acquired Comstock, one of the largest electrical contractors, while Davy acquired McKee and Dravo. "Bouygues Battle Brewing," *ENR*, Dec. 18, 1986; "France's Bouygues Completes Purchase of Rival," *ENR*, Apr. 17, 1986, at 5; "The French Ascension," *ENR*, Oct. 30, 1986, at 24; Paul Betts, "Bouygues' Expansion Continues," *FT*, Dec. 18, 1986, Survey sect. at 38; Elisabeth Campagnac & Vincent Nouzille, *Citizen Bouygues ou l'histoire secrète d'un grand patron* 157-83 (1988) (also discussing Bouygues' merger efforts with GTM and SCREG); Marc Colombard-Prout, "France," in *The Global Construction Industry* at 104, 109-12; 2 *MIntM* 1991, at 4020 (1991); 1 *MIntM* 1992, at 1773 (1992).

⁸⁹Trafalgar House Public Limited Company, *Report and Accounts* 7 (1992).

⁹⁰Peter Heywood, "European Firms Looking at Their Own Backyard," *ENR*, Nov. 27, 1986, at 67. See also Victor Cox, *International Construction: Marketing, Planning and Execution*, tab. 0.1 at viii (1982); Gluch & Riedel, "The Federal Republic of Germany" at 121; "Europe Set to Open Single Market Doors," *ENR*, Dec. 14, 1992, at 38.

⁹¹"Riviera Rivalries: European Contractors Compete for Booming Southern Market," *ENR*, June 11, 1987, at 15.

⁹²"Civil Engineering Companies Get More New Contracts Abroad," *BB*, July 29, 1988, at 18,20.

industry was even more dramatic. In 1974, at the outset of the OPEC boom, Europe accounted for only 3 per cent of the value of new international contracts and Africa, Asia, and the Middle East for 95 per cent. By 1991, Europe accounted for 44 per cent of new contract value; the EC alone surpassed all of the Middle East, Africa, Asia, and Latin America.⁹³

Interpenetration has also spread to relations between the First World and the so-called Newly Industrializing Countries. Construction firms from former Third World countries such as South Korea and Brazil have not only been able to wrest from leading First World firms a significant share of the world market for standard or relatively low-technology cost-sensitive heavy construction with a range of capital-labor substitution, but have even begun to compete in Europe and the United States.⁹⁴ Thus Construtora Norberto Odebrecht ("the Bechtel of the Portuguese-speaking world"), a Brazilian conglomerate with large petrochemical holdings and the 40th largest international construction firm in 1991, was forced "to operate worldwide, if only to know how to fend off our international competition in Brazil." Odebrecht has not only secured a contract for the Miami rapid transit system, but also entered into a joint venture with Bechtel to build a refinery in the former Soviet Union.⁹⁵ Unlike the Brazilian constructors, South Korean multinational firms were impelled to penetrate the U.S. market by their catastrophic loss of market shares in the Middle East in the mid-1980s. Firms such as Samwhan and Hyundai Engineering and Construction initiated the process by building public works in Alaska.⁹⁶

In the United States, from 1988 to 1990, foreign construction firms acquired seventeen U.S. construction firms in transactions valued at \$1.8 billion; during the same period seventy-eight mergers and acquisitions involving only U.S. construction firms took place valued at \$1 billion.⁹⁷ Although a Bechtel official sought to persuade Congress in 1985 that the forty-two foreign mergers and acquisitions that had taken place since 1978 in the U.S. construction industry had been driven by the foreign firms' interest in gaining U.S. technology and management expertise, a U.S. government report rejected this explanation, focusing instead on the non-U.S. firms' own technological niches and higher research and development expenditures.⁹⁸

By 1987 the rate of import penetration in nonresidential construction in the United States (4.4 per cent) was about the same as in Germany (4.5 per cent) and higher than in France (1.7 per cent) or Japan (0.8 per cent). And although "exports" as a share of U.S. domestic nonresidential construction (9.0 per cent) were considerably lower than in Italy (43.8 per cent), the United Kingdom (33.5

⁹³Calculated according to data in *BJ 1975* at 51; *BJ 1992* at 36.

⁹⁴"The Top International Contractors," *ENR*, July 16, 1981, at 68, 73; "Brazil Looks Abroad for Work," *ENR*, Apr. 7, 1983, at 17; U.S. International Trade Administration, *A Competitive Assessment of the U.S. International Construction Industry* (1989 ed. [1984]); "The Top 400 Contractors," *ENR*, May 25, 1989, at 80; Josmar Verillo, "Brazil," in *The Global Construction Industry* at 180, 189. On the political-economic contradictions inhering in this new international division of labor, see Ernest Mandel, *The Second Slump: A Marxist Analysis of Recession in the Seventies* 130-40 (rev. ed., Jon Rothschild tr., 1978).

⁹⁵Joel Millman, "You Have to Be an Optimist," *Forbes*, May 24, 1993, at 84 (quotation), 87; Rob McManamy & Armin Schmid, "Odebrecht: Brazil's Giant Beats Adversity," *ENR*, Sept. 20, 1993, at 45, 47 (quoting Odebrecht official); Andrew Wood, "Brazil's Odebrecht Builds a Major Petrochemicals Stake," *CW*, Mar. 31, 1993, at 36; "Big Soviet Job for Brazilian-U.S. Venture," *ENR*, July 15, 1991, at 5; Katherine Molinski, "Brazil's Odebrecht Targets U.S. and Chinese Construction Market," *Reuter European Business Report*, June 23, 1993 (Nexis).

⁹⁶"Koreans Crack U.S. Market," *ENR*, Dec. 5, 1985, at 46.

⁹⁷*SAUS: 1992*, tab. 854 at 534; *SAUS: 1991*, tab. 889 at 540; *SAUS: 1990*, tab. 884 at 534.

⁹⁸*U.S. International Competitiveness: The Construction Industry: Hearings Before the Subcomm. on International Policy and Trade of the House Comm. on Foreign Affairs*, 98th Cong., 1st Sess. 11-12 (1985) (testimony of Michael Stephenson); U.S. International Trade Administration, *Foreign Builders Target the United States: Implications and Trends* 19-20 (1988).

per cent), or France (27.6 per cent), the share approximated Germany's (11.6 per cent) and far exceeded Japan's (3.5 per cent).⁹⁹ In the same year, U.S. affiliates of foreign companies accounted for 6.7 per cent of industrial building in the United States—about 70 per cent of the corresponding level for all of manufacturing.¹⁰⁰

Protectionist initiatives, prompted by this wave of international centralization of construction capital in the United States, to restrict such foreign investments under the guise of national security have failed to come to fruition.¹⁰¹ By the same token, however, the Buy American Act was amended in 1988 to forbid the procurement by the federal government of construction services of a contractor owned or controlled by citizens or nationals of a foreign country identified as violating certain provisions of the GATT Agreement on Government Procurement in spite of the fact that the GATT Agreement does not apply to (construction) service contracts unless such services are incidental to the supply of products the value of which they do not exceed.¹⁰² With as yet undetermined consequences, the U.S. trade representative identified Japan as discriminating against U.S. businesses in the procurement of construction services.¹⁰³

More generally, the same kinds of disputes concerning trade barriers and state intervention that have characterized Japanese-American-European manufacturing trade relations have been replicated in the construction industry, in particular with regard to bidding on infrastructure projects.¹⁰⁴ Bemoaning the fact that no U.S. construction firm has been awarded a public works contract in Japan for over four decades¹⁰⁵ or any major contract since the mid-1960s, the U.S. international construction industry has even asserted that Japanese industrial firms' preference for Japanese construction firms on projects in the United States demonstrates that they "have transported the noncompetitive procedures and protectionist barriers they use in Japan to their investments in this country."¹⁰⁶ Such lobbyists fail to mention that U.S. industrial firms have for decades followed the same national-preference practice overseas.¹⁰⁷

⁹⁹OECD, *Globalisation of Industrial Activities*, tab. 34 at 105. Export shares and import penetration levels may be understated to the extent that multinational firms create "a network of autonomous operating companies" abroad. *Id.* at 105.

¹⁰⁰U.S. Bureau of Economic Analysis & U.S. Bureau of the Census, *Foreign Direct Investment in the United States: Establishment Data for 1987*, tab. 1 at 3-4 (1992).

¹⁰¹See "Foreign Bill Planned: Proposed House Bill Seeks to Limit Some Investments," *ENR*, Nov. 18, 1982, at 79.

¹⁰²Buy American Act, 41 U.S.C. §§ 10b-1(a)(2) and (g) (Supp. 1991); Trade Agreements Act of 1979, 19 U.S.C. § 2515 (1980); Agreement on Government Procurement (GATT), Pt. I, ¶ 1(a).

¹⁰³Robert Hershey, "Japan Formally Accused of Bias Against U.S. Contractors," *NYT*, July 1, 1993, at C2, col. 1 (nat. ed.); Martin Tolchin, "U.S. Embassy Work to Japanese," *NYT*, July 27, 1993, at C1, col. 3 (nat. ed.) (U.S. companies complained that Ohbayashi took a loss on bidding for renovating U.S. ambassador's residence in Tokyo in order "to keep U.S. construction companies out of Japan," whereby one of the "U.S." companies was J.A. Jones, a wholly owned subsidiary of Holzmann).

¹⁰⁴See e.g., "Mixed-Credit Coalition Hopes to Spur Exports," *ENR*, June 21, 1984; "NCA Maps Recovery Plan," *ENR*, Oct. 1, 1987, at 94; "Accord Reached on U.S. Access to 14 Major Projects in Japan," *ENR*, Apr. 7, 1988, at 12; Lee & Walters, *International Trade in Construction* at 82-87; Ralph Folsom, Michael Gordon, & John Spanogle, Jr., *International Business Transactions: A Problem-Oriented Coursebook* 358-59 (2d ed. 1991).

¹⁰⁵On Japan's yielding to U.S. pressure to make the bidding process more favorable to U.S. firms, see Keith Bradsher, "U.S. Cancels a Plan to BEGIN Sanctions After Japan Acts," *NYT*, Oct. 27, 1993, at A1, col. 3; Andrew Pollock, "Sanctions on Japan Less Likely," *NYT*, Jan. 17, 1994, at A1, col. 6 (nat. ed.).

¹⁰⁶*United States-Japan Services Trade: Hearing Before the Subcommittee on International Economic Policy, Trade, Oceans and Environment of the Senate Committee on Foreign Relations*, 100th Cong., 2d Sess. 30-34 (quotation at 33) (1988) (statements of Maureen Smith, Dept. of Commerce, and Mark Chalpin, National Constructors Association and International Engineering & Construction Industries Council).

¹⁰⁷*Business Week* reported that despite technological superiority, U.S. firms have few proprietary processes; instead, their advantage lies in the "close relationship" with the oil and chemical firms from which they license the processes. "Where the Constructors Strike it Rich" at 49.

Although internationalization as a competitive strategy is intended to dampen cyclical downswings for multinational construction firms, the formation of a world market enmeshing previously relatively autonomous national markets could in fact exacerbate world construction depressions.¹⁰⁸ In the United States and Europe, moreover, where the share of overseas contract volume accounted for by the largest construction firms is almost invariably higher than the latter's share of domestic contract volume, an increase in the relative weight of the world market could contribute to a further concentration of market shares. In Britain, six firms accounted for more than half of new overseas contract value in 1971 and five for more than three-quarters by 1982, while twenty firms accounted for 93 per cent of all overseas construction work in 1978; by the early 1980s, ten firms accounted for 90 per cent.¹⁰⁹ As early as 1972 twelve West German firms accounted for 85 per cent of that country's construction export orders.¹¹⁰ Even in France, where the degree of concentration is less prominent than in Germany and other countries, by 1978 four firms accounted for a third and ten firms for 58 per cent of foreign construction volume.¹¹¹

This internationally driven domestic centralization of capital was most prominently typified by the acquisition in 1986 and 1991 by Trafalgar House of Britain's two largest internationally oriented construction firms, John Brown Engineers & Constructors, Ltd. and Davy Corporation, respectively.¹¹² Purely domestic mergers and acquisitions among the largest multinational firms in other European countries, too, have been driven by the need to furnish the requisite financial base and market niches for firms to compete internationally. In West Germany in 1981, Hochtief purchased one-fifth of the stock of Holzmann, which in turn bought 15 (later increased to 23) per cent of Dyckerhoff & Widmann.¹¹³

By the same token, however, to the extent that the largest firms have accumulated large profits in relatively liquid forms or, alternatively, can locate spheres of investment that can accommodate the physical forms of their unutilized capital, some, hedging against a long-term contraction of international construction volume, have attempted to gain access to other industries. Two of the reasons, for example, that several large construction firms have diversified into coal mining is that they also build mine facilities and that open-pit methods use much of the same earth-moving equipment used in construction. Utah Construction (which later became Utah Construction and Mining, whose construction division was acquired by Fluor in 1969),¹¹⁴ was one of the first large construction firms to make the transition from building mines for others to exploiting its own copper and iron ore mines in the United States and Latin America (with the assistance of a loan from

¹⁰⁸On West German firms, see *Der Spiegel*, Aug. 4, 1975, at 38-39; on Swiss firms, see "Keine Stabilisierung in der Bauwirtschaft," *NZZ*, Sept. 16, 1975, at 15; "Rückbildung im Baugewerbe," *NZZ*, Nov. 19, 1974, at 33; "Bauwirtschaft 1974--wie weiter?" *NZZ*, July 13, 1974, at 17. Karin Behring, Erich Gluch, & Volker Rußig, *Entwicklungstendenzen im deutschen Auslandsbau* 48-49 (1982), find no correlation between domestic and foreign cycles.

¹⁰⁹"British Construction Work Overseas 1971/72," 9 *TI* 294, 295 (1972); Michael Cassell, "Stepping up Efforts Abroad," *FT*, Nov. 15, 1976, at 25; "Building Big Business Overseas," 33 *TI* 128 (1978); "Going Up--British Building Business Overseas," 37 *TI* 358 (1979); Ball, *Rebuilding Construction* at 140; "Building Up: The Work of UK Construction Firms Overseas," 9 *BB* 256 (1982); "Contractors Fight to Boost Overseas Markets," *IC*, Feb. 1983, at 21, 22.

¹¹⁰"West Germany," *IC*, Dec. 1973, at 26, 35.

¹¹¹Behring, Gluch, & Rußig, *Entwicklungstendenzen im deutschen Auslandsbau* at 53.

¹¹²Trafalgar House Public Limited Company, "Background Information" at 5 (July 1993).

¹¹³"Holzmann Buys Interest in German Contractor," *ENR*, June 16, 1981, at 46; "German Giants Move Closer," *ENR*, Nov. 26, 1981, at 5; *Directory of the World's Largest Service Companies* at 232, 235; "UK Firms Merger," *IC*, Jan. 1983, at 5; John Kosowatz, "Finnish Seek Help for Foreign Jobs," *ENR*, May 19, 1988, at 54.

¹¹⁴On the Fluor acquisition, see *NYT*, July 26, 1969, at 37, col. 2 (Nexis).

the Export-Import Bank) in the 1950s.¹¹⁵ Utah Construction and Mining and several large multinational construction companies with longstanding ties to the entities driving natural resource exploitation in the West and Southwest of the United States, including Bechtel, Morrison Knudsen, and Kaiser, began developing plans in the 1960s for building a complex of strip mines, power plants, and coal gasification plants as a regional industrial energy source.¹¹⁶ Bechtel and Fluor then acquired 15 and 10 per cent respectively of the largest coal mining firm in the United States, Peabody Coal, in the mid-1970s. In 1981, “[c]ash heavy” Fluor also acquired St. Joe Minerals for \$2.2 billion.¹¹⁷

British firms have also diversified into mining. Costain, “sensing the approaching end of the oil boom,” invested heavily to become a major coal producer (also in joint venture with Holzmann’s Jones Construction) and exporter in the United States and Australia in the 1980s.¹¹⁸ And Wimpey not only operates opencast coal businesses in the United Kingdom and quarries in the United States, Canada, and the Czech Republic, but is also a major producer of lime in the United States.¹¹⁹

A further reaction by large construction firms to the pressures of internationally competitive capital accumulation has been the assumption of a financial interest in their own projects.¹²⁰ Replicating the strategic behavior of the mid-nineteenth-century international railway contractors such as Brassey and Peto, the imperious valorization requirements of whose accumulated fixed capital compelled them to finance their own railways in order to forestall the idling of their enormous apparatus, construction firms no longer have the luxury of producing only on order. Under the pressure of the world construction market crisis, they have been compelled to produce speculatively as well.¹²¹ One such trend-setting arrangement is the founding of United Infrastructure Company, a joint venture between Bechtel and Kiewit, which will “fund, build, own and operate elements of infrastructure—highways, bridges, wastewater treatment plants—those kinds of things that are moving toward private ownership....”¹²² Without offering such “accommodative equity,” even large international firms like Brown & Root recognize that it will be impossible to build infrastructure in the United States.¹²³

¹¹⁵Wilson & Taylor, *Earth Changers* at 107-12.

¹¹⁶For an undocumented interpretation of this development, see Peter Wiley & Robert Gottlieb, *Empires in the Sun: The Rise of the New American West* 41-45 (1982).

¹¹⁷[Fluor Corp.], *Heritage: “Ready to Capitalize on the Hidden Assets in St. Joe,”* *BW*, Apr. 27, 1981, at 104; Fluor Corporation, *1991 Annual Report* 3, 19 (1992); 1 *IDCH* 569-71 (Thomas Derdak ed., 1988) (explaining Fluor’s subsequent partial divestiture of St. Joe); Michael Law, “Mining Surge May Pan Out,” *ENR*, Sept. 1, 1988, at 28; “Morrison-Knudsen’s Foray into Coal Mining,” *BW*, June 20, 1977, at 52; *BW*, Nov. 1, 1976, at 24. On Bechtel’s previous involvement with a planned coal pipeline, see *ibid.*, July 27, 1974, at 36-37; Dec. 15, 1975, at 24.

¹¹⁸Costain Group, “Costain Group” (n.d. [ca. 1990]); Costain Group PLC, “Company Milestones” (Sept. 30, 1992); “Building Up” at 260.

¹¹⁹*Wimpey: The International Construction Group* 8-9 (n.d.); George Wimpey PLC, *Annual Report 1992*, at 2, 9, 11, 22-25 (1993).

¹²⁰See e.g., “Goodrich, Bechtel Set Chemical Venture,” *WSJ*, July 21, 1977, at 11, col. 1; “The New Directions at Dravo,” *BW*, Sept. 13, 1976, at 100; “Bechtel: A Builder Moves into Financing and Operations,” *BW*, Oct. 22, 1979, at 119-20; Carrie Dolan & Bill Richards, “Bechtel to Cut Its Work Force About 10% in 1984; Nuclear-Power Plant Woes Cited,” *WSJ*, Feb. 27, 1984, at 4, col. 2.

¹²¹Jörn Janssen, “Das Baugewerbe—ein rückständiger Wirtschaftszweig?” in *Bauarbeit in der Bundesrepublik* 27, 34 (Wolfgang Richter ed., 1981) has deduced a trend toward production for inventory from the indicators of increasing capital intensity.

¹²²Judy Schriener, “No Grand Plan But Plenty of Cash,” *ENR*, Mar. 22, 1993, at 24, 25.

¹²³Gary Tulacz, “The Top Owners Are Building, But They Remain Cautious,” *ENR*, Nov. 22, 1993, at 34.

