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The F.T.C., Oligopoly, and Shared Monopoly

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Harvard Kennedy School

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F. M. Scherer
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One of the most important but equally difficult problems faced by antitrust agencies is posed by oligopolistic firms sufficiently few in number that they refrain from active price competition even without entering into explicit price-fixing agreements. Expanding upon a tradition extending back in time at least to A. A. Cournot (1838), Edward H. Chamberlin crystallized the dilemma in his 1933 classic (from p. 48 of the 1948 edition):

> If each [seller] seeks his maximum profit rationally and intelligently, he will realize that when there are only two or a few sellers his own move has a considerable effect upon his competitors, and that this makes it idle to suppose that they will accept without retaliation the losses he forces upon them. Since the result of a cut by any one is inevitably to decrease his own profits, no one will cut, and, although the sellers are entirely independent, the equilibrium result is the same as though there were a monopolistic agreement among them.

Section 1 of the U.S. Sherman Act (1890) pronounced as illegal "every contract, combination ... or conspiracy in restraint of trade or commerce among the several States." Early interpretations by the Supreme Court made it clear that explicit price-fixing agreements among sellers were per se illegal. But what if no evidence of clear-cut agreement could be produced? Clarification appeared to emerge when the three leading cigarette makers were found to have violated Sherman Act Sec. 1 even without evidence of meetings, messages, or explicit agreements. As the Supreme Court declared:[1]

> No formal agreement is necessary to constitute an unlawful conspiracy. Often crimes are a matter of inference deduced from the acts of the person accused and done in pursuance of a criminal purpose.... The essential combination or conspiracy in violation of the Sherman Act may be found in a course of dealing or other circumstances as well as in an exchange of words. Where the circumstances are such as to warrant a jury in finding that the conspirators had a unity or purpose or a common design and understanding, or a meeting of minds in an unlawful arrangement, the conclusion that a conspiracy is established is justified.

This decision established the basis of a "conscious parallelism" doctrine allowing illegal price-fixing to be inferred circumstantially from the conduct of the relevant

1 . American Tobacco Co. et al. v. U.S., 328 U.S. 781, 809 (1946).

oligopolists without direct evidence of formal agreements.

Subsequent judicial pronouncements, including one to be reviewed in more detail here, injected new precedential uncertainty, rejecting without clear delineation some claims of illegality associated with merely parallel and seemingly oligopolistic behavior while sustaining others.[2] It would not be excessive to say that the U.S. competition policy communities found themselves in intellectual crisis. In an influential 1959 book, for example, Carl Kaysen and Donald Turner concluded (p. 110) that:

> The principal defect of present antitrust law is its inability to cope with market power created by jointly acting oligopolists.... [W]e believe it is safe to say that a considerable number of industrial markets exist in which oligopolists, acting jointly, possess substantial degrees of market power, which they exercise without engaging in conduct violating the Sherman Act.

Perceiving the inability of competition policy to deal with tacitly cooperative oligopoly behavior, some -- e.g., Kaysen and Turner, the White House Task Force on Antitrust Policy (1968), and legislation (S. 1167) offered by Senator Philip Hart in 1972[3] -- proposed the targeted breakup of tightly oligopolistic industries. These proposals proved to be too ambitious for an era marked by increasing economic conservatism. Still others, such as Professor (and later U.S. appellate judge) Richard Posner (1976, pp. 71, 76) advocated invigorated antitrust action against inferentially collusive price-raising in oligopoly markets without requiring "evidence ... that the collusion was explicit rather than tacit," contrasting his preferred approach to the "cops and robbers" approach implied in requiring proof of explicit collusion, successful or unsuccessful.[4]

Most of the "great cases" dealing with tacit collusion or conscious parallelism were filed by either the Department of Justice, enabled with potentially criminal sanctions, or by aggrieved private parties. The Federal Trade Commission, however, also has a history of grappling with the problem. In this paper I analyze two such cases, an early one involving the antibiotic tetracycline and a "shared monopoly" case in the 1970s against the four leading ready-to-eat breakfast cereal producers. In both cases I played a bit part -- in the tetracycline case, as assistant to an economist for the Pfizer Company; in breakfast cereals, as Bureau of Economics

2 . There are many reviews of the cases. For my own, see Scherer and Ross (1990), pp. 339-346.

3 . For texts of the White House (Neal Report) and Hart proposals, see Goldschmid et al., eds. (1974), pp. 444-456. That volume brings together the principal dissenting schools of thought on industrial concentration and its economic consequences.

4 . That Judge Posner continues to hold this view is implied in the decision he wrote in High Fructose Corn Syrup Antitrust Litigation, 295 F. 3rd 651 (2002).

director and then witness for the FTC. I ignore other FTC cases entailing so-called "facilitating practices"[5] -- e.g., its successful challenge to steel and cement industry basing point pricing systems in the 1940s[6] and its thwarted effort concerning the pricing of tetraethyl lead in the early 1980s.[7]

The Tetracycline Case

Tetracycline was the most important early member of the broad spectrum antibiotic family, called "broad" because they are effective against both gram-negative and gram-positive infections. Its earlier (narrow-spectrum) predecessors included Salvarsan, used beginning in 1908 to combat syphilis; the sulfa drugs, effective beginning in the mid-1930s against a limited array of infections; and streptomycin, also effective against some infections. They were supplemented with the emergence of the antibiotic penicillin, mass-produced by at least 16 different companies in the United States during World War II for military use and then introduced commercially following the war. Recognition of penicillin's molecular structure and efficacy led soon thereafter to the discovery of broad-spectrum antibiotics, among which tetracycline proved to have the best combination of therapeutic efficacy and tolerable side effects.

The large number of companies producing penicillin gave rise to greatly improved productivity and fierce price competition, driving prices down with astonishing rapidity and leading to the exit of many producers. In addition to a wider span of therapeutic effects, the new broad spectrum "wonder drugs" were patented, limiting entry and hence price competition. Their high and seemingly rigid prices led to an investigation by the Federal Trade Commission, precipitating the publication in June 1958 of a report, Economic Report on Antibiotics Manufacture. It can fairly be characterized as a jewel in the F.T.C.'s "sunlight" function crown,[8] ranking with earlier reports on the petroleum industry, the steel industry, and the American Tobacco Company as classics in bringing historical and statistical analysis to bear illuminating how important industries function and malfunction.

The Antibiotics report documented a number of important phenomena. For one, it showed that the production of post-penicillin antibiotics had become quite concentrated, with half of total antibiotics production eventually attributable to only

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5 . To the best of my knowledge, the term originated in the first edition of my textbook (Scherer 1970, Chapter 6).

6 . F.T.C. v. Cement Institute et al., 333 U.S. 683 (1948); and Triangle Conduit and Cable Co. et al. v. F.T.C., 168 F. 2d 175 (1948).

7 . E. I. du Pont de Nemours and Co. et al. v. F.T.C., 729 F. 2d 128 (1984).

8 . On the F.T.C.'s "sunlight" function, characterized in a 1914 tract by Louis Brandeis, see Scherer (1990).

two companies, Pfizer and American Cyanamid. Second, it traced a history of patent interferences, threatened Patent Office denials, and negotiated inter-company settlements on a key patent protecting tetracycline, awarded eventually to Pfizer. Third, after substantial early price reductions quickly matched by the major producers, list prices to retailers and hospitals for the several main broad-spectrum antibiotics stabilized at $5.10 for bottles of sixteen 250-mg. capsules in September 1951 and remained at that level at least until 1958, when the report was sent to the printers. Fourth, it showed that the gross profit ratio -- i.e., sales revenues less direct manufacturing costs as a percentage of sales -- for broad-spectrum antibiotics remained in the neighborhood of 75 percent from 1950 through 1956, when the discovered data terminated. For two antibiotics producers whose identities were not revealed, net profits before taxes were more than 50 percent of assets in 1956. Left in the shadows of the Antibiotics report's sunlight were the behavioral phenomena through which entry-excluding patent settlements, rigid prices, and high profits had been achieved. On July 28, 1958 -- i.e., in the month following the Antibiotics report's publication -- a complaint alleging antitrust law violations was filed by the Federal Trade Commission. Further discovery and a trial compiling a record of 11,000 testimony pages followed.

The F.T.C. Proceedings

Five companies were charged in the F.T.C. complaint -- Pfizer, ultimate recipient of the basic tetracycline patent; American Cyanamid and Bristol-Myers, early claimants to the invention of tetracycline and ultimately licensed to produce it; and Upjohn and Olin-Mathiesson (later merged with Squibb), who contracted with Bristol-Myers to buy bulk tetracycline and hence sold it to hospitals and retailers. The F.T.C. complaint alleged inter alia that respondent companies had colluded to ensure that an entry-limiting patent would be issued on tetracycline, that they had agreed to limit licenses on the resulting patent to the five named firms, and that they had colluded tacitly or expressly to fix the prices of tetracycline and related broad-spectrum antibiotics.

To understand the crucial implications of the patent charges, some organic chemistry -- perhaps unprecedented in an economics journal -- is needed. Figure 1 reproduces, from p. 249 of the F.T.C.'s Antibiotics report, chemical structure diagrams for the three leading broad-spectrum antibiotics sold during the 1950s. Each of the three is a quadruple benzene ring, i.e., with each ring containing six inter-linked carbon atoms, to which were attached at the vertices diverse additional atoms or combinations of atoms.[9] The first broad-spectrum antibiotic introduced

9 . Another early drug with therapeutic effects extending beyond penicillin was streptomycin. It had a rather different structure comprising six full and one partial benzene rings. I ignore here still another early broad-spectrum drug, Parke Davis' chloramphenicol, which had only one closed benzene ring plus two open ones. It was marketed independently but at prices similar to

commercially (in 1948) was American Cyanamid's chlortetracycline (brand name Aureomycin), marked B in the diagram. Pfizer followed in 1950 with oxytetracycline (brand name Terramycin), marked C in the diagram. It differed from the original American Cyanamid B molecule with the addition of an OH (hydrogen-oxygen) radical at the top vertex of the third ring (marked Y in the diagram) and deletion of a chlorine atom at the top of the first ring (marked X in diagram B). Working with a Harvard University professor, a Pfizer chemist, Dr. Lloyd Conover, inferred that superior efficacy and safety might be achieved by simply removing the chlorine ion marked X from chlortetracycline without adding the OH radical marked Y. Conover et al. applied for a patent in 1952. But in short order three other firms, American Cyanamid, Heyden Chemical (promptly acquired by American Cyanamid), and (for a salt of tetracycline) Bristol-Myers filed patents claiming rights to tetracycline. A complex series of conflicting claim procedures called "interferences" were initiated within the Patent Office.

There were two main allegations of conspiracy in connection with the patent disputes. Documents revealed that the companies entangled in the interferences were anxious to ensure that <u>one of them</u> -- which one was of secondary importance -- obtained patent protection. American Cyanamid soon conceded priority to Pfizer in exchange for a full license; Bristol Myers followed suit, agreeing to a license allowing inter alia royalty-bearing sales to its bulk customers Olin-Mathiesson (later Squibb) and Upjohn. The F.T.C. alleged that in these negotiations the companies had explicitly agreed to limit the allocation of tetracycline rights to those five, but company executives denied under oath that any such restrictive agreement had been reached.

The second allegation was that the companies participating in the Patent Office's interference procedures had withheld relevant information from the patent examiner. In particular, tetracycline was first produced by "deschlorinating" chlortetracycline, although later, direct fermentation processes eliminating this step were developed. But if chemists could remove the chlorine ion from chlortetracycline, so also might nature. Evidence was produced before the Patent Office examiner that trace quantities of tetracycline were in fact found without further manipulation in the chlortetracycline produced by American Cyanamid. Their magnitude and the feasibility of extracting them for commercial purposes was heatedly disputed. If in fact medically useable tetracycline was co-produced in and recoverable from the previously manufactured chlortetracycline, that fact could serve as proof of prior (i.e., pre-tetracycline patent filing) discovery and commercial availability, which could prevent issuance of a tetracycline patent. When the contending companies agreed to settle their disputes and accede to the grant of a patent to Pfizer, the interference procedure was ended without further exploration of the co-production controversy. The Federal Trade Commission alleged that in

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the drugs featured here.

settling the priority question without resolving the co-production question, the companies withheld crucial information from the Patent Office and hence allowed a patent to be issued fraudulently.

The main non-patent facet of the F.T.C.'s complaint alleged conspiracy in setting and rigidly maintaining prices so far above costs that an inference of competitive price-setting appeared implausible. Company executives again insisted under oath that they had not joined collusively to set and maintain common prices. Expert witnesses for the companies adduced a variety of explanations as to why the oligopolistic market conditions fostered high and identical pricing without illegal collusion.

Pfizer retained M. J. (Joe) Peck as its principal economic consultant. Joe in turn hired me, fresh from an MBA program and without graduate-level training in price theory or industrial organization, as his assistant.[10] My principal job was to analyze detailed data on the prices quoted to city-county-state (CCS) hospitals. I no longer retain any paper records, but I have a distinct memory of what I found. Prices were in fact mostly uniform, marred on occasion by deviations initiated by wholesalers for the major tetracycline producers. When significant price level adjustments did occur, it seemed clear that there was a pattern of price leadership and close followership, although I had not read at all in the economic literature on price leadership. I performed a more perfunctory analysis of transactions involving the Armed Services Medical Procurement Agency, showing much less complete concord among sellers on how those unusually large and profitable transactions should be priced. A few years after this experience I participated in a graduate course taught by Thomas Schelling and of course read his famous book (1960). His discussion of focal point coordination of behavior combined with what I learned in analyzing tetracycline pricing to induce my own theory of focal point pricing, which I asserted in Scherer (1967) helped explain what actually occurred in tetracycline pricing.

Joe Peck was viewed by Pfizer's lawyers as too young to present as a witness in the F.T.C. proceedings, so he and I briefed a prominent Yale University economist, John Perry Miller, to offer the actual testimony. I no longer remember what he testified. I do recall attending a pre-trial meeting of economists representing each of the five companies charged by the F.T.C. It was disconcerting to realize that each of the economists had a different theory as to how the companies set their prices.[11] It was even more disconcerting, given that all of the economists

10 . My work on that case and my collaboration with Joe on a 1962 book led me to switch from a doctoral program in business administration to Ph.D. studies in economics at Harvard University.

11 . As I view the case in retrospect, I wonder whether the divergence of theories may have confused the administrative law judge into accepting an inference of price competition subsequently reversed by the full Commission.

planned to testify to the absence of explicit collusion, that some of the attendees referred to the five companies as "the club."

In December 1959, Senator Estes Kefauver shifted his attention in a series of Administered Prices hearings from steel, autos and the like to pharmaceuticals. See U.S. Senate (June 1961). He was undoubtedly influenced in this choice by the F.T.C. Antibiotics report's evidence on high prices and profits. Joe and I discussed Pfizer's request for a briefing on how Pfizer should structure its testimony before the Kefauver committee. We advised Pfizer, "When Kefauver says profits, you respond R&D." For decades thereafter my conscience was troubled over the realization that I might have contributed in a small way to misleading the Senate and hence the American public. I struggled professionally with several facets of the problem on numerous occasions before reaching what I consider a definitive resolution in Scherer (2010), pp. 562-569.

The trial proceeded, and at the end, the hearing examiner concluded that the Commission staff had not proved conspiracy either to limit competition through their handling of co-production claims before the Patent Office or to fix uncompetitive prices.[12] The F.T.C. enforcement staff appealed this decision to the five-member Commission, and in August 1963, the Commission overturned the examiner's decision and concluded that the respondents had in fact violated antitrust law.[13]

The full Commission agreed that conspiracy to withhold from the Patent Office essential information on co-production was not proven. But Pfizer and American Cyanamid, the Commission ruled, had fraudulently enforced the resulting tetracycline patent when they knew, on the basis of co-production information they had withheld, it should not have been issued. The Commission rejected the hearing examiner's inference that the Conover tetracycline patent was not a vital deterrent to entry because entry could have been blocked anyway by enforcement of American Cyanamid's chlortetracycline patent. On the pricing charges, the hearing examiner accepted the respondents' claims that they were competing too fiercely for both patent rights and subsequent sales to sustain a plausible price-fixing agreement. The Commission accepted that there was no evidence of an express or formal agreement. But invoking prior conscious parallelism precedents, the commissioners found that violation of the law could be found in the parallelism of prices and among other things in the exchange of price lists, documented complaints from one company to others that price uniformity was being violated, and other circumstantial evidence. It expressly rejected the hearing examiner's finding that the companies' distribution to purchasers of "free" tetracycline supplies was a less visible form of price competition belying the uniformity of prices actually charged. It inferred

12 . The examiner's 1961 decision does not appear to have been published in the F.T.C. Reports.

13 . In the matter of American Cyanamid Co. et al., 63 F.T.C. 1747 (1963).

instead that the award of "free goods" was used as a means for <u>preventing</u> general price reductions and therefore (p. 1873) as circumstantial evidence of agreement to stabilize prices.[14] Finding more generally that the five respondents had violated the antitrust laws through their conduct, the Commission (with one Commissioner dissenting on Squibb and Upjohn) ordered them to set new and independent prices for their antibiotics and to license both the tetracycline patent and two chlortetracycline patents to any domestic applicant at a 2.5 percent ad valorem royalty.

Needless to say, the companies appealed to higher authority. A focal point of their appeal was the claim that Paul Rand Dixon, chairman of the Commission at the time of the 1963 decision, was prejudiced because he had served previously as chief of staff in the Kefauver Committee investigation of pharmaceutical prices and profits.[15] The Commission's decision was vacated, and the case was remanded for de novo rehearing without the participation of Commissioner Dixon.

In 1966 the full Commission, with Paul Rand Dixon recused, ordered a partial retrial by a new hearing examiner. The ALJ was ordered to confine testimony to the question of fraud upon the Patent Office concerning possible co-production of tetracycline in the manufacture of chlortetracycline. The Patent Office examiner who had processed the tetracycline patent was called, along with a Pfizer chemist. The patent examiner's memory of events some 15 years earlier was unsuprisingly indistinct. He testified nevertheless that he was not aware that American Cyanamid's chlortetracycline actually contained tetracycline. And characterizing the law on such co-production, he stated unequivocally that <u>if</u> there was proof that the chlortetracycline broth actually contained tetracycline, the Conover tetracycline patent could not have been issued. The new F.T.C. hearing examiner therefore concluded that the Conover patent could not have been obtained and enforced without anticompetitive withholding of relevant information by the tetracycline producers and hence that the Commission's earlier order on patent licensing should be reinstated.[16]

The Commission in turn, with Mr. Dixon recused, ordered that its prior decision ordering compulsory licensing of the tetracycline and chlortetracycline be enforced.[17] Commissioner Mary Gardiner Jones dissented in part, arguing that, since no valid tetracycline patent would have been issued had the parties provided

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14 . I suggest in Scherer (1967, p. 501) that there was focal point coordination of the percentages of order quantities filled through free goods provision as well as in formally quoted pricing.

15 . American Cyanamid Co. et al. v. F.T.C., 363 F. 2nd 757 (June 1966) (Appellate Court for the District of Columbia).

16 . In the matter of American Cyanamid Co. et al., 72 F.T.C. 623 (1972).

17 . 72 F.T.C. 623, 657 (1967).

full information on co-production, the patents should be licensed at zero royalty rates rather than the 2.5 percent rate approved by the Commission majority.[18] The Commission's final opinion observed inter alia that new firms had already entered the production of tetracycline without a license from Pfizer or American Cyanamid. This was probably attributable to the uncertain validity of the Conover tetracycline patent as a result of Commission revelations and an assumption by would-be tetracycline producers that attempts by Pfizer or Cyanamid to sue for infringement would revive the validity question to the patent holders' disadvantage.

On the price collusion aspects of the F.T.C. intervention (not considered afresh by the new hearing examiner), the Commission concluded that ordering simultaneous and independent reissuance of price lists was unnecessary. Given evidence of substantial price declines following the original hearing, it observed further that:

> Mindful that the goal of its order is to remove unlawful restraints and foster future competitive conditions rather than punish for past conduct, two of the four participating members ... believe that the public interest will be adequately served by compulsory licensing and by continued close scrutiny of Pfizer's and Cyanamid's readiness to license other to make and sell tetracycline. In the view of these members, it is now unnecessary to decide whether the uniformity of prices in the 1950's was the result of a price-fixing conspiracy as contended by the complaint counsel or the product of conscious parallelism as respondents seem to suggest.

With two commissioners holding this view and no majority to overturn it, the portion of the original complaint charging price fixing was dismissed.

The Department of Justice Case

Resolution of the F.T.C.'s tetracycline case was not, however, the end of the story. In 1961, while the F.T.C.'s action was proceeding, the Department of Justice filed its own complaint charging the tetracycline producers of illegal price collusion. Since technically the F.T.C. must allege violations of the 1914 F.T.C. act prohibiting "unfair methods of competition" while the Department of Justice can directly allege criminal violations of Sherman Act Sec. 1, the two agencies are in principle permitted to pursue the same lead more or less concurrently. What followed was another chain of events showing how difficult it is successfully to sustain cooperative oligopolistic pricing charges in the absence of proof that outright agreements have occurred.

The charges were similar to those thrashed out in the F.T.C. case: collusive

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18 . 72 F.T.C. 623, 691-2.

pursuit and licensing of the basic tetracycline patent, plus collusion in setting and maintaining identical and noncompetitive prices.[19] As in the F.T.C.'s case, company executives denied explicit collusion in either their patent quest or in pricing; the evidence was largely circumstantial. Government attorneys emphasized among other things the uniformly high prices of tetracycline -- e.g., $19.1884 to the U.S. Veterans Administration and $30.60 per bottle of 100 capsules despite new production costs estimates of between $1.99 and 2.59 per bottle. A nine-week jury trial was held during 1967 in New York City.[20] Judge Marvin Frankel cautioned the jury that they could not find for conviction if the companies' pricing decisions were taken "independently as a matter of individual business judgment, without any agreement or arrangement or understanding among the parties." Especially in their summation to the jury, prosecution lawyers made much of high prices and implicit profits. Judge Frankel cautioned the jury not to decide simply on the basis of the prices' reasonableness, but:

> I think you will find it helpful to translate the word "unreasonable" to mean "unusual" or "artificial" or "extra-ordinary." By these suggested definitions I am trying to convey the thought that the idea of unreasonableness in the present context is meaningful only if it is understood to refer to kinds of price behavior or price levels which appear to be divorced from variations and differences in available supply or demand or cost or other economic factors that may normally be expected to cause variations or changes in the prices charged in a competitive market. To put the thought in another and slightly shorter way, the charge of unreasonableness in this case is material only insofar as it poses the issue of whether the prices involved exhibited qualities or peculiarities of a type that could be deemed evidence that such prices results from agreement rather than competition....[21]

The jury found the defendants guilty on all counts, and maximum fines were imposed.

On appeal, however, the conviction was reversed in a 2-1 split of the reviewing judges, and a new trial was ordered. The appeals court majority stated that in devoting substantial attention to such "inflammatory issues" as patents, profits, and pricing, Judge Frankel had failed to focus the jury's attention on the key issue of

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19 . This account is abbreviated from my discussion of the Justice Department case in the 1980 and 1990 versions of my textbook.

20 . Apparently, commencement of the formal trial was delayed until it appeared the F.T.C. case was bogged down.

21 . U.S. v. Charles Pfizer & Co. et al., from pp. 6270-6271 of the trial record. The principal reported opinion by Judge Frankel was his rejection of defendants' motion to dismiss at the conclusion of the jury trial. U.S. v. Charles Pfizer & Co. Inc. et al., 281 F. Supp. 837 (February 1968).

what agreements if any were reached at company executives' meetings with one another.[22] A 2-1 majority of other second circuit appellate judges denied a petition for rehearing en banc, and on further appeal, the reversal was implicitly upheld when the Supreme Court divided 3-3 on granting certiorari.[23] A new trial was then held. Nearly six years after the first Justice Department trial and the F.T.C.'s final tetracycline case resolution order, a different district court judge ruled in favor of the defendants.[24] In a brief opinion, Judge Canella found that the Justice Department had not conclusively shown that Pfizer's limits on the number of tetracycline licenses and the several producers' parallel pricing had resulted from conspiracy, since they might alternatively have stemmed from Pfizer's independent business judgment and a natural tendency toward uniform pricing in the highly concentrated, prescription-oriented market for antibiotics. On such reefs can conscious parallelism allegations founder.

The Breakfast Cereal Case

During the 1960s the Federal Trade Commission refrained from pursuing "great" cases, focusing instead on less complex antitrust issues such as mergers and price discrimination, the latter often involving relatively small firms. Its tendency to devote its antitrust resources mainly to unimportant matters was criticized by an American Bar Association panel (1969) and by Ralph Nader's "Raiders" in 1972.[25] On taking office as President in 1969, Richard M. Nixon appointed a new chairman with a mandate to invigorate the Commission's performance. His first chair, Caspar Weinberger, left after nine months to head the Office of Management and Budget. He was replaced by Miles Kirkpatrick, who had previously led the critical American Bar Association report. The third Nixon reform chairman, Lewis Engman, took office in March of 1973.

A widely held belief at the time was that the antitrust agencies should become more vigorous in dealing with monopolistic and tightly oligopolistic industries that maintained high prices and profits without evident overt collusion -- e.g., with the conscious parallelism problem. Several major F.T.C. cases were initiated, involving inter alia Xerox Corporation,[26] the eight leading petroleum companies, Continental Baking (producer of Wonder Bread), automobile "crash" parts, tetraethyl lead, and (never carried to the stage of an actual complaint) the broader auto industry. The "shared monopoly" case that hewed most closely to a pure conscious parallelism paradigm challenged the breakfast cereal oligopoly, led by Kellogg, General Mills,

22 . Charles Pfizer and Co. et al. v. U.S., 426 F. 2nd 32, 39-43 (April 1970).

23 . 404 U.S. 548 (1972).

24 . 367 F. Supp. 91 (1973).

25 . On the latter, see Mark Green et al. (1972).

26 . For my analysis of the Xerox case, see Scherer (2008), pp. 1054-1057.

and General Foods (i.e., Post).[27]

The original case complaint was filed in February 1972 -- during the chairmanship of Miles Kirkpatrick and when H. Michael Mann, on leave from Boston College, was director of the Bureau of Economics. Elements of the case reflected Mann's past emphasis on advertising as a contributor to monopoly profits in oligopolistic industries. Among other things, the complaint alleged that by proliferating brands and promoting trademarks inter alia through intentsive advertising, high barriers to entry had been created.[28] An unusually tough remedy was sought -- divestiture of independent companies from the leading cereal makers plus compulsory licensing of some brand formulas and trademarks (up to three percent of industry sales for each new rival) to allow the newly independent entities to compete on roughly equal terms.[29]

In most other respects the case was squarely in the "conscious parallelism" tradition, relabeled "shared monopoly." The four leading ready-to-eat cereal oligopolists controlled roughly 90 percent of industry sales, and profits were high. Numerous competitors had been acquired in the past by the Big Four, and the surviving industry leaders refrained among other things from offering lower-priced private label cereals despite requests from grocery retailers, sometimes closing down the private-label operations of acquired entities. High prices and profits, the complaint alleged, were maintained through "forbearance" in price setting and the handling of such quasi-price competitive tools as discounts to retailers, newspaper "cents off" coupons, and in-pack premiums (e.g., plastic toys). As the ultimate Administrative Law Judge observed, "The words 'conspire', 'contract', or 'agree' ... are nowhere to be found in the complaint."[30] Indeed, in an initial clarifying memorandum, attorneys for the F.T.C. stated squarely that "Although conspiracy is not alleged in this matter, the common course of action and the interdependent acts of respondents create a common bond that provides the nexus for joinder."

Theory and Evidence

As the F.T.C. staff prepared its detailed presentation, it was recognized that traditional economic theories did not provide sufficient support for the proposition that heavy advertising significantly discouraged entry. Rescue was found in the

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27 . The Department of Justice launched its own shared monopoly case against the leading automobile tire producers.

28 . The original complaint is reproduced in re Kellogg Company, et al., 99 F.T.C. Reports 8-16 (1982).

29 . Divestiture plus compulsory (patent) licensing were previously sought in complaints against General Electric and AT&T, but only compulsory licensing was ordered in the relevant cases.

30 . 99 F.T.C. 8, 18.

work of Richard Schmalensee (1978), who postulated a theoretical model showing that the proliferation of product variants -- in cereals, to approximately 150 brands in 1970 from half that number in 1960 -- could so fill "product characteristics space" that there is insufficient room for outsiders to enter and come anywhere near realizing necessary economies of scale. I for one was taken by the model.[31] I should perhaps have become wary when my home-town newspaper published a syndicated op ed column reading in part:[32]

> The Federal Trade Commission, which too often of late has seemed to be completely out to lunch, has now apparently decided to be out to breakfast too. How else can one explain the zany action of the FTC in launching legal battle against the leading U.S. cereal manufacturers on the ground that -- I swear, I'm not making this up -- the manufacturer is giving the American housewife too wide a choice.

Or I might have been warned when I explained the case to my favorite cousin, an executive on the Kellogg account for the Leo Burnett advertising agency, and he replied, "Good lord! You're attacking Middle America."

There was no appreciable disagreement among the parties as to whether ready-to-eat breakfast cereals comprised a relevant market and that it was highly concentrated. Opinions varied sharply, however, on the allegation of high profits. Subpoenaed data showed average after-tax profit returns for five leading cereal makers over the years 1958-1970 to have averaged 19.8 percent -- more than twice the average for all manufacturing industry.[33] The cereal companies also spent unusually high fractions of their sales on advertising -- e.g., approximately 10 percent over the years 1974-77.[34] The FTC staff recognized that this posed a problem for the interpretation of profitability data, since to the extent that advertising is an investment in future sales, it might more appropriately be

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31 . It led inter alia to my analyzing additional economic welfare implications in Scherer (1979).

32 . Louis Rukeyser, "FTC Eating Spiked Cornflakes?" Ottawa, Illinois, Daily Times, April 6, 1978. The column appeared only a few days after the Washington Post named the F.T.C. as "the national nanny" for announcing an effort to declare as an unfair method of competition the intensive advertising of heavily sweetened and otherwise questionably nutritious products on child-oriented television programs. See also Pertschuk (1982), Chapter 3.

33 . Prosecution exhibit CX-701A. F.T.C. Line of Business program data available only later showed breakfast cereal makers' pre-tax operating income over the years 1974-77 to have averaged 39 percent relative to assets -- ranking among the top four among 259 manufacturing industries over those years and first in 1977.

34 . From the Federal Trade Commission's Line of Business surveys for 1974-77, which shows cereal advertising/sales ratios to be consistently among the top eight among 259 manufacturing industries. Similar but less comparable figures were submitted in evidence.

capitalized and then depreciated in computing returns on assets. Independent research had shown that when certain advertising level and growth relationships prevailed, capitalization instead of expensing could significantly reduce calculated percentage profit returns. The staff therefore retained Thomas Stauffer, author of the leading theoretical analysis (Stauffer 1971), to recalculate rates of return under a range of alternative assumptions and present the evidence at hearings. For the advertising effect decay rates believed to be most plausible (i.e., in the range of 35 to 80 percent per annum), Stauffer's calculations showed cereal makers' returns to be well above all-industry averages.

On decay rates, however, economists for the F.T.C. encountered an evidentiary dilemma. The most thorough available econometric study revealed a high annual decay rate on the order of 80 percent. Although it was known informally that the study focused on cereal brands, the authors were required to keep the identity of the industry confidential, writing only (Bass and Parsons 1969, p. 105) that the products studied were sold in supermarkets and that:

> A handful of firms dominate the industry. Each firm closely follows the actions of competitors and reacts quickly to any significant change in advertising, price, or quality.

Thus, no proof of direct relevance could be offered.[35] Economists representing the cereal companies argued that the effects of advertising were much longer-lived, especially for continuing baseline as compared to incremental advertising, with decay rates as low as 10 percent and correspondingly lower adjusted profit ratios.

A central issue in the conscious parallelism allegation was how the cereal makers set and maintained prices that yielded above-average profits. I was primarily responsible for that part of the analysis. It was clear that a system of price leadership existed, with Kellogg serving most (but not all) of the time as price leader. Documents discovered in the case revealed that Kellogg was proud of its leadership role. For example, in a 1966 talk, a top Kellogg executive quoted an experienced advertising executive as telling him:[36]

> He said this: "In my judgment there is no area in the food business today in which the true qualities of industry leadership are more aptly displayed than in the cereal industry, where Kellogg provides strong and consistent leadership in building and expanding the profitable climate of true growth, virtually free from destructive pricing and promotional practices that -- in many similar product categories -- have undermined the vitality that is so necessary in their industry's continued progress."

35 . But see the hint disclosed by the ALJ at 99 F.T.C. 8, 222.

36 . Speech of C. A. Tornebene in December 1966. Exhibit CX-K-549P.

The speech was delivered at a meeting of Kellogg sales managers, but it would not be unreasonable to infer that similar views were expressed at the periodic meetings of the Cereal Institute trade association, encompassing the leading rivals. The same speaker continued:

> Kellogg has a long history of consistently *resisting* price cutting and gimmicks and withstanding competitive pressure in these arenas with notable restraint -- up to the point where it was necessary to participate -- overwhelmingly -- in order to put an end to destructive practices.

The record shows that indeed Kellogg did launch occasional, narrowly targeted, price wars against private label cereal makers (notably, firms other than those charged in the F.T.C. proceeding) and that the usual outcome was a return to higher prices.

Interpretation of the price leadership evidence was complicated by the fact that the main cereal producers offered many different brands at varying prices. My analysis of the data suggested that price leadership was exercised in "rounds," each round encompassing numerous but not all varieties. Out of 15 unambiguous price increase rounds between 1965 and 1970 with fairly complete documentation, Kellogg led in 12 and on only one occasion was not followed by its leading rivals, General Mills and General Foods. I presented inter alia a regression analysis relating incremental revenue raised in the rounds to company market shares. The regressions were computed for me by F.T.C. staff economists, but turned out in hindsight to be flawed, since the staff had inadvertently reversed some of the left- and right-hand side variables.[37]

My price leadership testimony was furiously challenged by economic witnesses for the cereal companies. The most telling blow came from Jesse Markham, expert witness for Kellogg. Markham had been the teacher in my first graduate industrial organization course, my colleague and mentor for three years at Princeton University, and continued to be a close friend. In both my testimony and the first (1970) edition of my textbook, I referred to Markham's pioneering (1951) analysis of price leadership, distinguishing among other things leadership that was relatively ineffective from leadership "in lieu of overt collusion." In both cases, however, I differentiated my own analysis of the conditions necessary for price leadership to yield cooperative oligopoly price levels from those articulated by Markham. In particular, I disagreed with Markham that it was necessary for rivals' products to be "extremely close substitutes" for price leadership to be effective as a

37 . I didn't know about the flaw when I testified, because under F.T.C. rules, once a witness begins testifying, he is unable to discuss the substance of his testimony with staff. My normal procedure in such matters is to "do it myself," but at the time, personal computers with useable regression packages did not exist.

coordinating mechanism. In his rebuttal testimony, Markham adopted an attitude of rueful disappointment and said in effect:[38]

> Yes, Dr. Scherer was my student. But I'm afraid he didn't learn his lessons well enough. He overlooks the crucial third condition in my article for the success of price leadership -- the requirement that products be extremely close substitutes.

In truth, I did not overlook it but rejected it, largely as a result of my own research on successful price leadership in many industries, including the automobile industry, which Markham singled out in his testimony as one in which products were so heterogeneous as to make price leadership "meaningless."[39]

There was parallelism too in the refusal of leading cereal companies to supply private-label cereal (with Ralston as an exception), in the limitation of special "trade" discounts to retailers, and in the use of "in-pack" premiums. The inclusion of "in-pack" toys and the like was extensive in the 1940s and 1950s, but in the summer of 1957, it fell from as high as 22 percent to 1 percent of boxes sold and remained there for at least a decade. On my hunch, the F.T.C. staff found an article published in a leading trade journal several months before the decline was observable that:[40]

> The great tide of premiums offered by cereal manufacturers may be stemmed shortly. Several trade sources said last week that the major cereal suppliers are formulating an agreement to drop package inserts. The reason given was excessive package breakage.

A decade later, an internal General Foods staff analysis confronted a rumor that rivals might break "the industry guideline" and observed that:

> To date, the three major manufacturers ... have been respecting an

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38 . The precis here is my reconstruction from memory, not necessarily true to the original. Markham pursued on multiple occasions a similar routine toward my heretical deviations from his teachings.

39 . Quoted by the administrative law judge in 99 F.T.C. 8, 83. My knowledge of the auto industry was based in part upon the extant industrial organization literature but also on a detailed case study done within Ford Motor Company in 1959. In my May 1976 memorandum urging the Federal Trade Commission to undertake an investigation of the automobile industry, I wrote that "General Motors has traditionally been the price leader, and it sets prices to achieve a target rate of return, no doubt taking into account in recent years the threat of increased imports. The other makers tend to fall into line or even back off when their own price announcements preceded and prove to be inconsistent with GM's."

40 . "Cereal Makers' Agreement May Stem Premium Tide," Supermarket News, March 11, 1957, p. 4.

"unwritten rule" stemming from fierce and unprofitable competition in the early and middle '50s , that they have retail exposure with only one pack-in premium in one brand at a given time.

This was the closest the F.T.C.'s evidence came to showing an actual agreement rather than follow-the-leader behavior. But from it an inference might at least be drawn that the cereal makers were consciously working together toward common goals.

Political and Legal Difficulties

As the Federal Trade Commission wound up its case in chief, it was widely believed that it had presented very strong arguments. At that point, Kellogg realized that its blue-stocking New York law firm was floundering. It fired them and brought in a new team, headed by Frederick Furth and his smaller San Francisco-based firm. Furth recognized that the case might be won not only in the courtroom but also in the halls of Congress and public opinion. A substantial lobbying and public relations campaign was mounted. And among other things, Furth brought into the case the American Federation of Grain Millers' union, persuaded inter alia by a consultants' study (almost surely fallaciously) that divestiture of cereal company plants would cause sizeable employment losses for union members.

Compounding the public relations problem was the fact that the F.T.C.'s new chairman, Michael Pertschuk, contemplated a major rule-making (i.e., consumer protection mandate) attacking the extensive advertising of breakfast cereals and related products on child-oriented television programs. I remember vividly a meeting of key cereal case staff in 1978 whose thrust was, "Pertschuk is going public on kid vid next week. If he does, our case is lost. What can we do?" The answer was, nothing, because under F.T.C. rules, enforcement staff are not allowed to communicate with Commission members about ongoing cases. So Chairman Pertschuk went public, the Federal Trade Commission became the "national nanny," and turmoil broke out on Capitol Hill.[41] Among other things, bills were filed (but not passed) that would have ended the case or removed the Commission's authority to impose a divestiture remedy. The F.T.C.'s appropriation was held in limbo for two years, with occasional mandated work stoppages. And in the final week of the 1979 presidential campaign, both major candidates -- Jimmy Carter and Ronald Reagan -- gave speeches in Michigan disavowing continuation of the cereal proceedings.

Another serious problem emerged closer to home. After almost all of the testimonial record (eventually totalling 20,000 pages with exhibits) was completed, excepting only a few remaining witnesses from the cereal companies, presiding administrative law judge Hinkes faced a difficult personal dilemma. His wife was

41 . For Pertschuk's own reflection, see his book (1982), especially Chapter 3.

grievously ill and needed constant care, which she could best obtain by moving in with her daughter in California. Judge Hinkes wanted to join her, but felt obliged to see the case through to completion before taking full retirement. He therefore retired formally from the Commission but was retained under a temporary employment contract to complete the case. Cereal company lawyers stormed Capitol Hill, claiming that because Mr. Hinkes' civil service tenure was ended and he could be released from employment on short notice (which he wanted anyway!), he could not be impartial, and therefore he had to be replaced. Pressure from Capitol Hill forced the Commission to discharge Hinkes and appoint a different ALJ, Alvin Berman, to hear the final witnesses, read the record, and render a decision.

After presiding over the remaining testimony, the new administrative law judge issued his decision, comprising 253 finely printed pages. He agreed that the industry as defined was highly concentrated. On most other points, he rejected the Commission staff's charges. For example, on the profits debate, he opted (p. 221) for the lowest decay rate (10 percent) propounded by cereal company witnesses, asserting that "because of the admitted imprecision of the Koyck model ... I am compelled to accept the lowest rate (the one most favorable to respondents' position) which appears to be possibly correct." This led to adjusted profit returns no higher than those for manufacturing industry benchmarks. That in turn led to a conclusion (p. 260) that "complaint counsel's factual assertion basic to its shared monopoly theory, that respondents and others in the RTE industry realized supracompetitive profits, fails for lack of proof." From this followed a conclusion that the cereal companies could not be held responsible for the lack of competitive entry. My testimony on price leadership was rejected largely on the basis of Professor Markham's criticism, and so (p. 266) "there has been a total failure to demonstrate pricing coordination among respondents." Other suggestions of tacit or explicit collusion were rejected for lack of conclusive proof, because the cereal companies were found to have been competing vigorously in their new product and advertising efforts, and because the F.T.C. staff's initial assertion that no evidence of explicit collusion would be offered precluded attaching weight to later evidence supporing that hypothesis.[42] Thus, Judge Berman ordered that the case be dismissed.

What happened next was even more unprecedented. It is not uncommon for the losing party to appeal an administrative law judge's decision to the full Commission. Asserting that the ALJ decision was "riddled throughout with major procedural orders," the case staff asked that an appeal be lodged. But division chiefs appointed by the new Reagan Administration chairman refused to forward their appeal to the Commission. The staff therefore bypassed their superiors and appealed directly to the Commission. Faced with this staff mutiny, the four sitting

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42 . For his treatment of the in-pack premium evidence, among other things totally ignoring the lead time requisites emphasized in my testimony, see 99 F.T.C. 8, 121-127.

commissioners (with one chair vacant) weighed the merits of fully reviewing the case findings and (with a dissent from former chairman and still commissioner Pertschuk) chose not to do so. Commissioner Patricia Bailey articulated her own view (pp. 288-289) of the majority's decision to vacate the Administrative Law Judge's decision "with no precedential or even persuasive authority for any proposition whatsoever":

> [W]e should not undertake to restructure an industry under Section 5 of the FTC Act without a clear supportive signal from Congress. In this case, the signals are, for the present, quite to the contrary -- as they were not so apparently in 1972 when this complaint was issued.... The paradox we are left with is that while there may be a legitimate concern about the anticompetitive effects of the exercise of oligopoly power, it is rarely true that these concerns will mandate an administrative agency decision to restructure an industry short of a legislative warrant to that effect.

And so ended the Federal Trade Commission's other great conscious parallelism case.

Its consequences, however, did not end. Over eleven years following the case's termination in January 1982, the retail price index for ready-to-eat cereals rose at twice the rate of increase for "food-at-home" and also for all urban consumer goods purchases. See Cotterill et al. (1994, Figure 2). Comparable statistics for earlier periods are not available. However, data from the U.S. Census of Manufactures show that price-cost margins[43] in the consistently defined four-digit S.I.C. industry "cereal breakfast foods" rose from approximately 47.5 percent between 1972 and 1977 -- i.e., while the case was actively pending -- to an average of 61.7 percent over the ten years 1982 through 1991 -- among the five highest such margins evident among 459 four-digit manufacturing industries. Multiplying the post-closure price-cost margin differential relative to 1972-77 averages by sales in the ten post-closure years, one finds that the additional prices paid by retailers for breakfast cereals amounted to approximately $10 billion. Assuming not implausibly that cereal producers no longer found it prudent to restrain their prices and margins once the antitrust threat had ended, this was a high cost indeed for American consumers.

43 . I.e., the ratio of (value added minus payrolls) divided by value of shipments.

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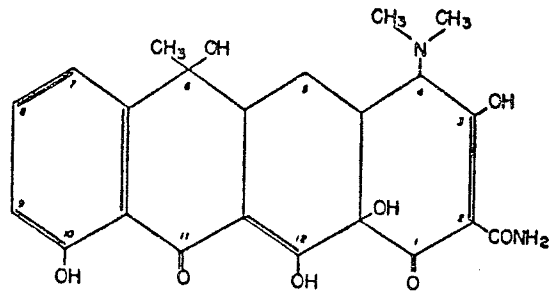
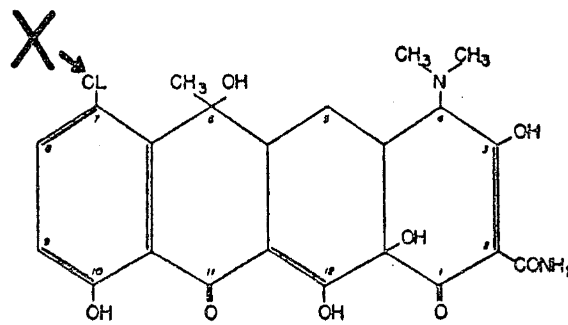
Figure 1

CHEMICAL STRUCTURE OF TETRACYCLINE CHLORTETRACYCLINE, AND OXYTETRACYCLINE.

A TETRACYCLINE



B CHLORTETRACYCLINE (AUREOMYCIN)



C OXYTETRACYCLINE (TERRAMYCIN)

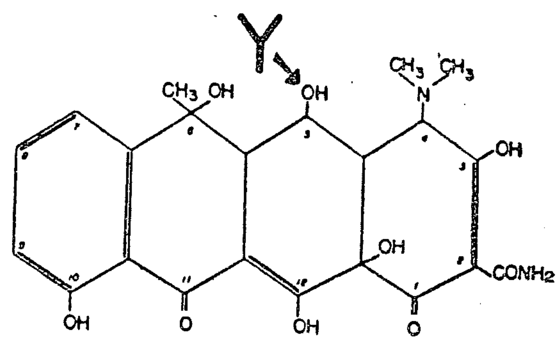


CHART 9.

Source: Henry F. Dowling, Tetracycline, Medical Encyclopedia, Inc., New York, 1955, p. 14.