

The Michelin Tire Corporation: Birth and Development of a Modern Multinational

Francesca Tesi (Sorbonne Paris IV)

Introduction

The birth of a multinational company depends upon the creation of a network of subsidiaries or factories in different countries, each one trying to preserve the most important aspects of the original firm. Considering the history of the Michelin Company, it is important to analyse the role that the American market played in the development of the firm as a multinational and the impact that the invention of radial tires had on the American tire industry. Michelin started working on the radial tire in the late 1940's (the "X" type) and thanks to this innovation the enterprise obtained a technological gain on its competitors and started the "radialization" of the entire tire industry. This event acquires a new importance when focusing on the penetration of the American market that Michelin started in the 1950's.

Michelin began to export its products to the USA at the end of the 1940's.¹ In 1950 Michelin established a subsidiary in New York city. Michelin Tire Corporation was the first official step that Michelin took in the New World after the shutting down of the Michelin Tire Company which occurred in the 1930's.² Following a

¹ Michelin Heritage, « Michelin et l'exportation », *Bibendum Bulletin Intérieur Michelin*, n. 75, December 31st 1948, p. 1.

² Francesca Tesi, *The Michelin Tire Company: the American adventure(1907-1931)*, EBHA Conference 2007.

chronological analysis it is possible to define the most important phases that brought Michelin to start a massive penetration of the American market. The French company adopted different strategies connected to the necessity of making its products known and appreciated.³ The Corporation's activity in the United States was connected to the technological innovations that gave the company a corporate advantage with respect to its competitors. During the 1960's three important events drew Michelin into the American tire market. In 1966, Sears signed an agreement to sell Michelin's radial tires in its stores. For the first time, Michelin agreed to mark its products with another brand name. In the case of its agreement with Sears, that brand name was "Allstate". Only the specification "made in France" which was stamped on every tire, allowed people to understand that the items were not made by an American corporation. The same year, Ford Motor Company decided the 1968 Lincoln, a prestigious car, would have radial tires as original equipment. The firm choose Michelin for its quality and technical expertise.⁴

The resultant growth of sales in the market pushed the French company to open a factory in Nova Scotia, Canada in 1971. Four years later, the first American factory was opened in Greenville, South Carolina. In March 1975, the first American-made car tire was produced.⁵ Tire sales increased in the 1970's and the company earned a reputation for excellence that accelerated demand for its products. During the 1970's other factories were established in different states, but the company continued to maintain its headquarters in New York. The recession of the 1980's deeply wounded the tire industry in general and Michelin suffered losses as well, but even so the company

³ Michael Brown, "The value of "X"", *Autocar*, December 18th 1953, p. 2-4.

⁴ Hebert Lottman, *Michelin. 100 ans d'aventure*, Paris, Flammarion, 1998.

⁵ Michelin Archives USA, Internal Press, 1980's.

opened other facilities in Nova Scotia and in the USA. In 1989 Michelin moved its headquarters from New York to Greenville in order to consolidate North American operations and manufacturing. That same year Michelin decided to adopt a very aggressive strategy in the US and purchased the Uniroyal-Goodrich Tire Company. This acquisition made Michelin the largest tire company in the world and provided the corporation with a portfolio of strong brands with a rich heritage in the American market.

1/ FIRST EXPORTATIONS TO THE USA AFTER WWII

Birth of the Michelin Tire Corporation

In 1949, the company began to export a very small quantity of tires to the United States.⁶ By 1950 Michelin had established a trading company, the Michelin Tire Corporation in New York City in order to improve sales and service. The beginning was very modest, with a small office space in New York City and a few leased warehouses used as distribution centers. The Michelin Tire Corporation's Commercial Division, the first division of the American subsidiary, had the function of selling and distributing Michelin products in the country. In the early 1950's there was only one name on MTC's payroll: Pierre Maluski, a sales executive. Soon he recruited a small staff numbering just a handful of people. The business began and employees of MTC moved their typewriters and supplies into a building located at 341-343 East 62nd Street in New York City. This was MTC's first headquarters. The corporation stayed there for four

⁶ Robert Puisieux, *Souvenirs*, Clermont Ferrand, Éditions C. de Bussac, 1968.

years. The first product that the Michelin Tire Corporation sold in the USA was the Métalic a steel-cord tire for trucks. The Métalic had a cross ply construction. It was not a radial tire.⁷ It sold well, but in modest quantities. It was already known in the US before WWII and it had gained a reputation for ruggedness and durability.⁸

Table I

American organization of Michelin in the USA in the 1950's

Main office and warehouse:	Location	Property
Michelin Tire Corporation	Woodside, N.Y	Michelin owned
Branch offices and warehouses:		
Michelin Tire Corporation Crocker Industrial Park	Brisbane, CA	Michelin owned
Michelin Tire Corporation Houston warehouse service	Huston, TA	Rented
Michelin Tire Corporation North Pier Terminal	Chicago, IL	Rented
Michelin Tire Corporation Southwestern bonded warehouse	Atlanta, GA	Rented
Michelin Tire Corporation Signal Trucking Service Ltd.	Los Angeles, CA	Rented
Michelin Tire Corporation North Star Warehouse Inc.	Minneapolis, MIN.	Rented

Source: Michelin Archives USA.

The radial tire pioneered by Michelin as early as 1948 was to appear progressively on the American market from the mid-fifties onward. By the late fifties, Michelin radials, better known as the Michelin X, became available for both commercial vehicles and European cars exported to the US. American cars had not been designed to take advantage of the Michelin X radial construction.⁹ It became necessary to develop a radial tire that would be favourably adjusted to the specific requirements of American cars, roads and drivers. MTC moved to larger quarters in the

⁷ Michelin Heritage, « Nos Métalic aux Etats-Unis », *Bibendum Bulletin intérieur Michelin*, n. 207, le 7 juillet 1955, p. 3.

⁸ Michelin Archives USA, Michelin Tire Corporation: Thirty years in the USA.

⁹ A letter was addressed from General Motor to Michelin Tire Corporation in 1951, in order to test a Michelin X on a model Chevrolet.

Greenpoint section of Brooklyn in 1954. Roger Lemale was then executive vice-president. He was to stay at the helm for twelve years. In 1956 Michelin introduced a new concept in truck tires, the XZZ, which was a radial with belt and casing made of steel cords. Until 1957 the activity of the French company was focused on truck tires and the American subsidiary obtained good results. The sales of 1957 reached 4.800.000 dollars.¹⁰ Michelin had a commercial organization well adapted to the conditions and the importance of the market. Twelve exclusive representatives contacted the distributors, the dealers and the most important costumers.

Table II

The progression of truck tires sales

Year	Sales in tonnes
1949	33
1950	266
1951	527
1952	1.474
1953	1.864
1954	1.920
1955	2.670
1956	2.970
1957	3.960
1958	4.500 (estimate)

Source : Archives MINEFI, Fonds B- 23813.

The development of imports of European cars to the United States and the growing demand of X tires to equip foreign sport cars drove Michelin to improve its commercial structure, thereby exploiting new possibilities for sales.¹¹ Moreover, the company started a new project creating a special section where personnel and business expenses would be focused on the sale of car tires. It was because of this attempt to

¹⁰ Michelin Heritage, « Pneus Michelin aux États-Unis », *Bibendum Bulletin Intérieur Michelin*, n. 246, Mai 10th 1957, p. 3.

¹¹ All the models Rover, Austin, M. G. Morris, Riley, Wolseley, Standard Triumph, Ford Europe, Hillman, Humber, Jaguar, Sunbeam, Singer sold in the USA were equipped with Michelin tires.

cover necessary expenditures for the new department's opening that Michelin asked the French administration for the accordance of an insurance certificate. The contract had to cover the fixed charges for the new passenger car tire division of the American subsidiary. Some services had to be shared with the truck department. For that reason Michelin asked that 20 percent of the fixed charges be counted in the secured charges.

Table III

Total expenditures for the opening of the passenger car tire department

Total expenses:	Amount in dollar:	Percentage attributed to the department	Percentage attributed to the French administration \$
Charges of technical setting-up (technical license on passenger tires)	22.000	100%	22.000
Participation to expenditure of the department and representation:			
Amenities and purchases	22.000	100% (22.000)	
Rent of facilities and depots for passenger car tires	18.000	100% (18.000)	
Paycheck and charges for the passenger car tires department	55.000	100% (55.000)	
Paycheck and charges for other department	100.000	20% (20.000)	
Supply, wire, telephone, postage, repair, heating, lighting, insurance, taxes, patents, corporate income tax, bad debt, etc.:	80.000	20% (16.000)	131.000
Participation to advertising expenses:	25.000	100%	25.000
Displacement, paycheck, charges of compensation, travelling expenses	330.000	20%	66.000
Total \$:			244.000
Total franc:			102.500.000

Source: Archives MINEFI, Fonds B- 23813.

The first fiscal year's total reached 244.000 dollars, including expenditures realized in 1957 to establish the new division. Considering that the agreement was delayed for four years, the costs for the next three fiscal years would reach 250.000 dollars for 1959, 275.000 for 1960 and 275.000 for 1961. The total amount for the four years was 1.044.000 dollars, or 438.500.000 francs. Michelin decided to count a 15 percent trading margin in the price that had to be used to cover the running costs (no profit margin was expected). The trading margin represented 5 percent of the turnover. The depreciation rate of the secured charges had been fixed at 10 percent. Michelin did not want to find a way of covering a price difference (between France and United States), but the company tried to cover the risk of not-depreciation of the turnover realized by the sales of car tires and the operating costs of the American structure.

The Commercial Advisor Counselor at New York agreed with the company's project. He asserted that despite the recession that took place in the USA, there were many factors that could encourage the activity of Michelin.¹² First, the exportation of European cars was constantly growing, developing a demand for small tires.¹³ Second, American manufacturers were not interested in the production of tires that could be assembled on foreign cars.¹⁴ Michelin had an advantage here with respect to its competitors that gave it the opportunity to develop its sales by obtaining a strategic position in the American market. The rise of volume in sales gave Michelin a cushion to help with its costs. By analyzing the number of European cars in operation in 1958 and realizing that the purchase of tires would reach approximately 500.000 units, Michelin

¹² Gilbert Burk, Sanford S. Parker, «The biggest car market yet», *Fortune*, November 1956, p. 109-113; 274; 276; 279-280.

¹³ John G. Rae, *The American automobile Industry*, Boston, Mass. Twayne Publishers, 1984; Mark S. Foster, *A Nation on wheels. The automobile culture in America since 1945*, Toronto, Wadsworth Book, 2003.

¹⁴ The sizes of the tires for the European cars were different from the types assembled on the American cars.

felt that its sales could represent about 10 percent of this number. In an attempt to deal with this future volume, Michelin doubled its deposits and workforce, so that the company could keep a stock of 10-12,000 tires on hand. Finally, Michelin took part in all the most important Auto Shows throughout the USA and made an extraordinary effort to be present in the most important revues of the country.¹⁵

Table IV

Expectations presented by Michelin 1958-1961

Year	Number of tires sold in the USA	Turnover (\$)
1958	45.000	725.000
1959	80.000	1.200.000
1960	100.000	1.500.000
1961	125.000	1.750.000
Total	350.000	5.200.000

Source : Archives MINEFI, Fonds B- 23813.

The statistics presented by Michelin's American subsidiary were a bit more optimistic in relation to those that were given by the French arm of the organization. Considering this factor along with the retained depreciation rate (10 percent), the eventual loss considering the expectations would reach 200.000 million francs. For this reason Michelin asked for an indemnity of 100-120 million francs that the company could obtain over four years. The Treasury Department raised many objections to this argument which meant delays in the signing of the agreement. Observations and criticisms were presented by the different parties. The Treasury Office wanted to know the net return of the operation presented by Michelin since the growth of tire production addressed to the foreign market would bring a rise in the imports of goods (such as cotton and rubber) needed by the tire manufacturing industry. It was not possible to

¹⁵ Archives MINEFI, Fonds B- 23813.

compare the loss applied to the state (around 100 million francs) to the turnover realized by Michelin in the foreign market (around 2.184 million francs), without considering the expenditure of currencies connected to the imports. Considering all these factors the aid of the state could have exceeded the 4.75 percent originally called for. Moreover, the government asked for a reduction of expenditures expressed in the survey. The government underlined that the amount of expenditure covered by the insurance contract in four years would reach 500 million francs. The report made by the insurance company showed that Michelin had a well established organization in the United States thanks to its experience in the truck tires field. This aspect could make it easier for the introduction of passenger tires in the USA.¹⁶ Despite these objections, the cover was granted to Michelin. It was approved on September 11th 1958 and notified on October 9th 1958. It contained all the conditions presented by the *Compagnie Française d'Assurance pour le Commerce Extérieur*. Nevertheless, the amount of secured charges was fixed at 400.000.000 francs instead of 438.500.000 as originally called for. The term was fixed at four years beginning January 1, 1958.

Table V

Summary of balance sheet account of the four financial years of Michelin in USA

Year	Secured charges	Expenditure incurred	Expenditure taken into consideration	Turnover	Indemnity	Bonus received
1958	1.000.000	940.510,58	940.510,58	3.281.783,74	306.166,11	36.563
1959	1.175.000	1.222.919,67	1.175.000,00	5.564.759,10	309.262,05	46.379
1960	1.175.000	1.284.754,52	1.175.000,00	6.131.573,01	280.921,35	47.513
1961	1.175.000	1.394.326,58	1.175.000,00	6.636.735,01	255.663,25	48.522
Total	4.525.000	4.842.511,35	4.465.510,58	21.614.850,86	1.152.012,76	178.977

Source : Archives MINEFI, Fonds B-23813.

¹⁶ Archives MINEFI, Fonds B- 23813.

Considering the results of these four years, it is possible to verify that the sale of passenger car tires in the American market increased by 50 percent between 1958 and 1959, rose by 10 percent from 1959 to 1960 and they went up again by 9 percent between 1960 and 1961. The increase shown for the last two years (which included only the sale of X type tires) was lower than expectations. This aspect showed that Michelin continued to have difficulties in the replacement market where the domestic manufacturers had a kind of monopoly. The situation was quite different concerning X tires adapted to the sizes of the European automobiles imported to the United States.¹⁷ The growing presence of European models in the American fleet of cars gave Michelin the hope of obtaining good results in the replacement passenger car tire market for 1960. Two factors interfered with the expectations of the company. The American tire manufacturers that had factories in Europe started introducing their products in the American market.

Moreover the domestic tire companies began to produce some models of tires that met European dimensions in order to equip the imports sold in America, in particular for Volkswagen, Renault, English Ford and Opel.¹⁸ At the same time, Michelin had to face the competition of the European tire makers such as Dunlop, Continental and Pirelli. Moreover, small secondary companies had begun to sell tires for the European cars at low prices. The competition was focused on two aspects: kind of product and price. This situation drove Michelin to reduce its prices a few times in 1960.¹⁹ Between 1959 and 1969 Michelin employees in the USA grew from 50 to 250 and the sales force expanded from 10 to 103 agents. By 1965 the Michelin staff

¹⁷ Robert Sheehan, « A big year for small cars », *Fortune*, August 1957, p.104-107; 196; 198.

¹⁸ Francesca Tesi, *Le esportazioni automobilistiche europee negli Stati Uniti dopo il Secondo Conflitto Mondiale: confronto di strategie tra Francia, Germania, Gran Bretagna e Italia*, Ph.D dissertation, University of Florence, 2008.

¹⁹ Archives MINEFI, Fonds B- 23813.

consisted of only two hundred men and women, and by 1968 the increase in business meant that MTC had outgrown the Woodside location. In 1961 Michelin conducted full service American sales operations from new headquarters at Lake Success, Long Island, where the firm's new national headquarters building housed executive and general offices and a tire distribution warehouse. Offices and warehouse covered an area of 80.000 square feet. The 22.000 square foot office, located on the upper level, was supported as a second story above the landscaped plaza. A 60.000 square foot warehouse and mezzanine was below the plaza. The warehouse was accessible from the street by a roadway which sloped at the rear of the building to a lower level. Eight truck docks and ramps providing access to the warehouse were also located at that point. A glass-enclosed office area near the center of the lower level provided operating personnel with direct visual control of all dock and warehouse activities. The building had been designed to allow expansions to increase the original size by five times without disturbing the main structure.²⁰

French truck radial tires for the United States

The launching of the truck X tires in the USA was attentively followed by Michelin. The 1960's can be considered as a springboard used to reach an important position in the American tire industry during the following years. Nevertheless, it was in 1958 that a technological innovation gave an important advantage to Michelin to revive its truck tire sales in America. It was a rim formed with a large circumferential well or

²⁰ "Michelin moves to new home", *Tire Review*, December 1968, p. 30.

gutter whereby the rim was rendered generally concave towards a tire mounted thereon, with tire-bead seats that were inclined 15° with respect to the axis of the wheel. The wheel was provided on either side with a bead set that on the outside ended in an edge flange. The circumferential well was generally in the center portion of the rim. The well was connected directly to one of the seats and connected to the other seat by means of a substantially cylindrical or conical part of varying size.²¹ The combination of tire and rim was called Drop Center at 15° (in brief DC at 15°). The DC 15° was covered by a patent requested in 1953 by Robert P. Powers, an engineer who worked for Firestone, and granted in 1956.²² Furthermore, Firestone had assigned the patent license for free to all the American tire makers trying to sell it in Europe where the demand for the patent was very high. At that time 5 million of rims DC 15° had been sold in the United States, but the tires assembled on the rim did not satisfy the customers. These difficulties encountered by the American companies gave Michelin an opportunity, since they understood the possibility of a great advantage by using the tubeless tire X.

The question became a very important one for Michelin. It was necessary to prevent a reaction by Firestone, so Michelin decided to create some combinations of tire and rim so that each element could be interchangeable with the other corresponding to the combinations certified by the rules of the I.T.R.A.²³ At the same time the French product should be different than the others so that no one could start a legal action arising from the use of the patent allowed to Powers. Michelin adopted the dimensions decided by the I.T.R.A. for the elements of the combination, but when it came to the rims, the inclination was set at 10° instead of 15°. Michelin's idea was to sell its tires as

²¹ United States Patent 3661425, Heavy-duty Wheel, filing date, 05/09/1972, publication date, 05/09/1972, assignee, Compagnie Générale des Etablissements Michelin.

²² United States Patent 1822320, Pneumatic tire and rim, inventors, Robert P. Powers, publication date, 01/17/1956, assignee, Firestone Tire & Rubber Co.

²³ International Tire and Rubber Association.

replacements on the rims DC 15° and at the same time the company wanted to spread the entire kit. Michelin was ready to distribute rims of 15° instead of 10°, if it was necessary. The French enterprise succeeded in maintaining deep control of the performances of the first tires sold. The firm began to verify in different field tests the skills of its products, always trying to find a way to improve them. By the end of 1960, Michelin had sold 200 tires and 200 wheels to the PIE company and to the Consolidated Freight Way.²⁴ The results of the performances of these products were followed by the company. The average mileage of the tires was around 140.000 miles.²⁵ Taking into consideration this value the Michelin truck tires doubled the mileage of the cord tires of the same dimensions realized by its competitors.

That proved the superiority of the model X Tubeless, and the important “weapon” that Michelin had in its hands. After completing a study about the tastes and habits of American drivers, Michelin brought off an efficient strategy of penetration. The company decided where it was important to carry out a new advertising campaign. The efforts were concentrated in the eastern states, because in the other ones the Michelin tubeless truck tires were already well known. Michelin hoped to sell 5.000 units for any size during the first years.²⁶

In 1961, Michelin devoted itself to an aggressive marketing strategy of its X tubeless tires, a policy that was not very efficient. The firm gave the American public

²⁴ Michelin Heritage, «Michelin dans le monde», *Bibendum Bulletin Intérieur Michelin*, n. 255, November 22 1957, p. 3.

²⁵ Twenty tires had been regenerated by the agent Murphy of San Francisco after they had run 162.000 miles. The tires did not need any reparation differently from the previous tube tires, Michelin Heritage, letter from Lemale to Bertrand and Baumont, New York, on August 18th 1960.

²⁶ Michelin introduced two sizes: 11-24.5 et 11-22.5. For the first one the company estimated an application of 75 percent in the West and 25 percent in the East. The statistics were inverted for the other size. Something was going to change in the Eastern states. In 1960, Michelin signed a series of contracts with American transporting companies that decided to equip their trucks with tubeless Michelin tires. The number of truck fleets adopting Michelin tubeless tires passed from one to four, Heritage Michelin, Conférence du 16 décembre 1958.

the impression to « *bricoler, ce qui a pour résultat d'une part de faire hésiter les bonnes volontés qui marchent avec nous pour le pneu sans chambre, et d'autre part de laisser dans l'incertitude les partisans du pneu traditionnel attachés à Michelin* ». ²⁷ Reading the table VI, the sales for the year 1961 reached around 6.000 tires instead of 16.000 as the company foresaw.

Table VI

Sales of tubeless tires in the USA

Type	Year 1959/1960	Year 1960/1961	Oct./Dec.1961	Total	Estimation
9-22.5 X	-	719	61	-	-
10-22.5X	769	1976	144	863	1.200
11-22.5X	-	732	275	3.020	5.000
11.24.5X	-	796	168	964	6.200
Total	769	4.223	793	5.785	16.000

Source : Michelin Heritage, Information Release n° 1044, February 1962, *Sales Engineering Information Release Tubeless in Tubeless tire.*

The estimates presented by Michelin in the table did not take into consideration the real production capacity of the firm, nor did they consider the shortage that affected the activity of the company. The statistics depicted in table IV were the results of the delay in American orders. Because of these problems, the American subsidiary had to treat the argument with discretion. The password was: « do not push too much the tire Drop Center, we do not have a big quantity of tires, and probably we are not going to have them for a long time». Observing the different data for the various size tires, one can analyze the problem by tire type. Referring to the first one, for example, the American agency did not receive a model for three months. Looking for a solution, the

²⁷ «Fix its products and this consideration made hesitate people that believed in this new tubeless type and at the same time, it made the supporters of traditional models connected the Michelin brand uncertain about the traditional products». Michelin Heritage, Politique pneu X sans chambre poids-lourds.

company sold ordinary rims to people who needed replacement tires and wanted to buy the rims from the Drop Center to adopt the new Michelin tires.²⁸ The second type presented different problems. A customer from Atlanta had decided to equip his fleet with this kind of tire. He had ordered 1.500 units for the next month. The French company could not deliver a large quantity of tires respecting the production levels for the other kinds. The firm decided to sacrifice the production of the third type raising that for the second size. The American subsidiary was in a tough position. The third size of tires as presented in table VI had been adopted by the PIE Company on the West coast. The PIE was going to sign an agreement with Michelin to obtain a large quantity of tires. The fourth size was manufactured without problems. Every month the American subsidiary received 280 tires. Nevertheless, the branch was going to sign a contract with the Consolidated Freightway that asked for 200 tires a month. The other customers had to share a quantity of 80 units. The American branch asked the head office for a decision. The policy in favor of the tubeless model had to be followed by a new strategy. It was dangerous to find new excuses for agents and customers.²⁹ The problem that Michelin had to face could be summed up very easily. In trying to find a way to strengthen its position in the worldwide market, the company spared no efforts in developing a campaign in favor of the tubeless tires which underlined its innovative characteristics. This strategy, adopted in the USA, was an attempt to settle the brand on American soil. In Europe the situation was different. In the Old Continent, the situation of the company was stable and requests for these kinds of tires was not as high as in the USA. It was necessary to follow the positive trend.³⁰ The American subsidiary

²⁸ Jean P. Norbye, *The Michelin magic*, Modern automotive series Tab books Inc., 1982; Berliet Foundation, *Michelin et le Sahara*.

²⁹ Eric Tompkins, *The history of pneumatic tyre*, Dunlop Archive Project, Eastland Press, 1981.

³⁰ Michael J. French, *The U.S. Tire Industry. A History*, Twayne Publishers, Boston, 1984.

suggested a solution. It proposed to interrupt the sales in Europe for the delay that would be necessary to develop the brand in the USA. This strategy had to be abandoned when the product capacity became sufficient for the two markets. The solution proposed by the French firm was different. The company established new factories in France and in other countries. During the next ten years, the number of production facilities and research centers increased. At the same time the global output rose. In 1969, the sales of truck and passenger car tires reached 200 million units.

2/ LOOKING FOR NEW ALLIES

The Caterpillar's affair

At the beginning of 1962, Michelin signed a contract to sell its X tires to Caterpillar, an important American company. On January 24 1962, Michelin managers met a few representatives of Caterpillar in New York. Michelin tried to collect any information about the necessities of the American construction industry. J. B. Jass, director of the Research department and T. Geselbracht, an engineer, tried to give all the explanations that the American company was looking for about the Michelin products. Caterpillar decided to buy some earthmover tires to make some tests. The French firm asked to receive any information about the results of the first experiments.

Right from the beginning, the performances were extraordinary compared to those of other tires made by American manufacturers.³¹ At that time the engines of the

³¹This advantage had been exploited in France by the domestic construction industry, Dominique Barjot, *Travaux publics de France: un siècle d'entrepreneurs et d'entreprises, 1883-1992*, Paris, Presses de l'Ecole Nationale des ponts et chaussées, 1993; Henri Sigaud, *Les années ardentes: Razel, l'ascention*

earthmover trucks had been curbed by the limits of the tires. Thanks to these new tires, Caterpillar could realize heavier and more powerful vehicles. The firm had never found a kind of tire that could bear the weight and the speed of the new models which they manufactured. The company had been forced to adopt new and heavier American tires, a choice that brought a loss to the balance of the machines.³² Considering this, Caterpillar asked Michelin to join their efforts to create a new tire. Moreover, the manufacturer was making a study to convert its old bulldozers (tracked vehicles) to the tire. At the same time, Caterpillar wanted to establish a new department to begin a production of trucks for the Civil Engineers industry.

Based on these considerations, Caterpillar ordered six tires to equip its engines.³³ It was ready to adopt the Michelin tires as original equipment on its vehicles. The firm asked that any kind of information would be confidential and Michelin accepted the conditions presented by Caterpillar. It was an important opportunity that the French company could not lose. Caterpillar was one of the most important companies in the Civil Engineers field in the USA. In 1961 the firm sold 700 million dollars of its products. Considering that one third of the sales came from vehicles that run on tires, and that the price of one excavator was around 50.000 dollars, the sales had reached around 4.000 units which meant 16-20.000 tires sold per year. Moreover, if Caterpillar found a way to make its bulldozers run on tires, the demand for tires could reach 35-40.000 tires a year (two thirds of the total amount). On February 27th 1962, Michelin met with W. H Franklin, director of the Caterpillar Export Service and Supervisor for the Foreign Factories. A preparatory agreement explained the long term

d'une entreprise familiale de travaux publics qui mise sur la suprématie des valeurs humanistes, Paris, France-Empire, 1995.

³² Eric C. Olermann, *Caterpillar chronicle: the history of the world's greatest earthmovers*, Osceola, WI, MBI, 2000.

³³ Michelin Heritage, *Michelin et les pneumatiques, une longue course vers le progrès*, 1974.

strategies of the two enterprises. Franklin asked the French managers if they had the capability to set up a factory to make earthmover tires and if the entire production could be exported to the USA. Baumont, who represented the interests of Michelin in the USA, said that a new facility was going to be built in Clermont Ferrand. The new structure could produce a great quantity of earthmover tires. Referring to the tires exported to the United States, Baumont stated that Michelin was ready to enter the American market with its new tires. The quantity of units to be exported had to be connected to the opportunities offered by the American constructors.

Moreover, Baumont did not exclude the possibility of establishing a factory in the USA as a way to improve the exports to the New World. Franklin asked if a facility that manufactured truck tires could produce earthmover tires. Michelin's answer was easy :

*« l'importance du problème oblige à séparer les confections et les cuissons des pneus génie civil du reste des fabrications. D'autre part, il est aussi évident que l'énergie électrique, les installations de vapeur, d'air comprimée etc.... peuvent être commun. Enfin tout le département préparation et mélange peut être également un commun».*³⁴

The answers given by Michelin convinced Caterpillar and they then described their plans for the coming years. Caterpillar wanted to begin a new policy. Their most recent engines and their future projects needed a new generation of tires that would represent 20-25 percent of the retail price. Their engineers understood that the

³⁴ «The importance of the problem forces us to separate the manufacturing department and the cooking one of the earthmover tires from the other products. Nevertheless, it is evident that the electric energy, the steam machines, the air machinery etc. can be in common. Finally the preparation department can be in common», Michelin Heritage, Information Release n° 1044, February 1962, *Sales Engineering Information Release Tubeless in Tubeless tire.*

performances of their products were tied to the tires.³⁵ Caterpillar proposed to Michelin a rented facility. The American firm was ready to build a new structure where Michelin could manufacture its items. The idea was to establish a system of replacement tires distribution thanks to the technical assistance of Michelin. The French company could train experts that worked in the organization. The company wanted to create a service that could support the company in the different states. If Michelin accepted the offer of Caterpillar the French company had to respect some restrictions. Michelin could not manufacture its tires for Caterpillar's competitors and the products had to be branded as Michelin/Caterpillar.³⁶

This last point was hard to work out.³⁷ At the same time J. E. Jass, director of the technical service department, decided to order fifty earthmover tires a month so that he could continue to work and perform tests on new engines in tough conditions. The birth of a collaboration between the two enterprises was confirmed one year later when Michelin took part at the large Chicago Fair. In fact, as a member of the American Association of Constructors, Caterpillar asked the Fair's organizers to allow Michelin to be accepted at the exhibition. Moreover, Michelin asked Caterpillar to display some vehicles equipped with X tires.

³⁵ Michelin Heritage, *Information Presse. Michelin: un siècle d'innovation. Du « pneu démontable » au « pneu vert »*, October 1995.

³⁶ That was a real impediment to begin this collaboration. Michelin had contracts to observe. If the company refused to deliver its tires to the Euclid company it meant to jeopardize the relationship with General Motors in the United States and in Europe, Michelin Heritage, Caterpillar tractor Co. sales, engineering section product division; Notre situation vis-à-vis de Caterpillar.

³⁷ Nevertheless concerning the problem of exclusivity of the production for Caterpillar, the American anti-trust law did not allow the accomplishment of the agreement, Michelin Heritage, *Problèmes techniques chez Caterpillar*.

The contract with Sears, Roebuck & Co. and the beginning of the “radialization” of the American market

During the 1960's there was nothing static about the tire industry. New developments emerged from laboratories and test tracks periodically. The quest for greater safety and improved performances contributed to these advances yet the basic stimulant undoubtedly was competition, the desire to outdo the other fellow. The search for something better appeared to be centered on the radial ply tire. The more enthusiastic believed radial type construction was the answer, at least for the immediate future. There were indications, however, that a modified version of the radial would eventually win out.

Some companies such as Armstrong and Goodyear were interested in fiber glass. This kind of material could give the tire many of the characteristics of the standard radial tire. With significant improvements in tread wear and bruise resistance, and marked reduction in power consumption and high speed heat generation, the manufacturers hoped to make a breakthrough in tire technology. The traditional tire had an important economic factor on its side since it could be built with existing equipment while the radial tire required new facilities. The radial principle made its debut in snow tires in the winter of 1967-68. Goodyear was the first manufacturer to announce it would offer such a product, predicting 100 percent longer tread wear than with conventional winter casings. Goodyear recommended that the radial snow tires had to be used only with the standard radial tires on the front wheels.³⁸

³⁸ Joseph E. Kuebler, “Current “Search” centers around the radial tire”, *Tire Review*, June 1967, pp. 38-40.

In 1965 Ralph Nader published a book that shocked the American society: “*Unsafe at any speed*”.³⁹ The book argued that the Big Three, especially General Motors, were more concerned with making higher profits than making their products safer. Nader pulled examples from all three of the major car makers, but most of his criticism was directed at GM’s Chevrolet Corvair model.⁴⁰ He charged that the Corvair had a tendency to roll over because of its design, especially the absence of a stabilizing bar between the front wheels. The book generated a great number of legal proceedings. At the same time, Nader explained the role played by the tires that equipped the models under discussion. The domestic car makers had tried to save money by looking for cheap components.

Tire producers were forced to deliver a great quantity of tires at the lowest price. Thickness, style and colors were considered more important than internal structure, safety and durability. The tire makers made money, but they did not realize any investment in the R & D field to improve the quality of their products. Moreover, a survey explained that the tires were conformed to the weight of the cars sold.⁴¹ In his book, Nader began to support Michelin radial tires by explaining the better quality of the French product. For the first time, American car makers had to modify their products because of the interference of government and subsequently, the quality of the tires assembled on the cars started playing a new role. Ford was the first American car maker to assemble some of its cars with radial tires.⁴² In 1966, Ford decided to adopt

³⁹ Ralph Nader, *Unsafe at any Speed*, Grossman, New York, 1965.

⁴⁰ James M. Rubenstein, *Making and selling cars. Innovation and change in the U.S. automotive industry*, the John Hopkins University Press, Baltimore, 2001, p. 210-213.

⁴¹ Alain Jemain, *Michelin. Un siècle de secrets*, Paris, Calmann- Lévy, 1982.

⁴² During the 1960’s, the American tire industry was having hard times because of the strikes. The tie-up of the tire plants, apparently did not present no immediate problems for the tire industry’s biggest customers, the four automobile companies. General Motors, Ford, Chrysler and American Motors said they expected to have an adequate supply tires for the remainder of the 1967 model year. Henry Ford commented at his company’s annual stockholders meeting that his firm’s purchase of 14.000 Michelin

the Michelin black and white radial tires as original equipment for its Mustang.⁴³ But it was only in July 1966 that the approach of American drivers toward radial tires was officially tested. In December 1965 George H. Struthers, merchandising vice president of Sears, Roebuck & Co., began a national marketing campaign of radial tires for passenger cars. The company had discontinued selling two-ply tires of conventional design which called for the plies to be laid crisscross instead of radially as in the new tire construction.

The new radial tires were designed and manufactured especially for Sears by Michelin. The tires were featured under the Allstate name in Sears' 1966 spring catalog, issued in January 1966, that was introduced in retail stores in the spring. Sears' new radial tires had two-ply construction; as opposed to the conventional four plies that were available in three sizes which fit about 75 percent of American made and imported cars. In contrast to the American casings reinforced with textile cord, Sears adopted the European version with the harsher riding steel wire belts under the tread. Domestic producers who realized automobile companies would never accept the steel cord idea because of the stiffer ride had been concentrating on all-fabric radials which offered a somewhat softer ride. The prices ranged from \$37 to \$44 a tire, including tube. Sears top line was around \$30 a tire. The Sears tire carried a 40,000 mile guarantee depending on such factors as amount and type of wear. Sears was not alone in offering radial-ply tires to the US market since Goodyear Tire & Rubber Co., Firestone Tire & Rubber Co. and U.S. Rubber Co. had been marketing radial ply tires in the USA for more than a

radial ply tires for optional use had proven to be especially fortunate in view of the later strike developments, Michael J. French, *The U.S. Tire Industry...op.cit.*, p. 100-103.

⁴³ One month later, Ford decided to adopt the radial tire for the entire production. This project was not easy to apply, but from 1967 the most important American tire makers (Uniroyal, Goodyear, Firestone and General Tire & Rubber Co.) began to deliver their own radial tires to the Ford factories, «Ford to purchase some radial tires from Michelin», *Automotive News*, October 31st 1966, pp. 10.

year, though their size ranges had been limited mainly to those for use on foreign automobiles. Those of Goodyear and U.S. Rubber had been imported from the companies' European tire plants while Firestone had manufactured them in Akron, Ohio. In November 1965 B. F. Goodrich began marketing a full range of sizes in radial ply tires for the replacement market. Manufactured in the company's Akron plant, the tires had been introduced gradually in individual marketing areas with the first being in Dallas.⁴⁴ A second marketing area was expected to be designated in 1966. A Sears spokesman said the two-plys had been dropped from the catalog six months ago and the company had sold off most of its remaining stocks at retail stores.⁴⁵

This kind of tire had been discontinued because of poor customer acceptance. Performance tests brought out nothing to influence the decision. Two ply tires of the conventional bias-ply construction were first introduced in 1962 as original equipment on new cars, beginning that year on only the so-called compact autos. Since then, their use had been expanded to standard-size autos with more than 95 percent of the original equipment tires being of the two-ply variety.⁴⁶ The radial tire appeared in the USA one year later than in European countries. It was hard for the American makers to accept the concept of a cord tire reinforced by steel. Until 1964, despite the fact that 75 percent of European cars were now using radial-ply tires, the American tire industry did not drag its feet in this area. Some American companies still considered the noise and the ride problems very real. According to their opinion, the tires were especially noisy on

⁴⁴ «Goodyear Markets USA-Made radial passenger tires in Kansas City», *Tire and TBA Review*, July 1966, p. 24.

⁴⁵ «États-Unis, pneumatiques Michelin sur le marché américain», *Le pneumatique*, Mai-June-July 1966, n. 108, p. 43.

⁴⁶ «Sears to start selling radial ply tires made by Michelin of France», *The Wall Street Journal*, December 21st 1965, p. 6.

cracked cement.⁴⁷ Moreover, the strategy adopted by Sears was the beginning of hard times between the domestic tire manufacturers and the American administration. While Sears surprised many industry people with its radial announcement, the company admitted dropping 2-ply passenger tires from its last July catalog. Most of the 2-ply had been sold. Senator Gaylord Nelson, outspoken critic of the 2-plys, hailed the move as “obviously significant.”

Table VII
Number of passenger car tires sold in the USA.

Years	Passenger car tires (Thousand)
1965	5
1966	417
1967	360
1968	801
1969	955

Source : Michelin Heritage, Michelin in U.S.A. (1), dossier years 1960-1970.

Nelson had charged that the tire was hazardous for extended driving, and urged the Senate Commerce Committee to investigate why Sears had taken this step. Nelson contended the committee had to find out “why this leading tire supplier has withdrawn from the market the very kind of tires which are supplied with many of our new cars.”⁴⁸ Never an enthusiastic booster for the 2-ply, Sears contended it was dropping the tire because of poor customer acceptance and not because of any performance failure. In the new catalog, the company pledged that every new tire it sold was built with a strong full four-ply cord body.

⁴⁷ Joseph M. Callahan, «Noise, ride problems dog radials Firestone», *Automotive News*, December 21 1964, p. 11.

⁴⁸ Joseph E. Kuebler, «Sears Imports radials from France tire industry sees record '66 sale», *Tire and TBA Review*, January 1966, pp. 46.

The new French made products, however, had two radial plies plus the series of belt strips under tread. Two-ply tires had made their debut on compact cars four years before. In 1966, they were standard equipment on more than 95 percent of all U.S. cars.⁴⁹ The only holdouts had been the Ford Thunderbird and Lincoln. Some station wagon models had been equipped with heavy duty casings. Both automotive and tire engineers pointed out that tests showed the 2-ply tires could outperform the standard four-ply tires in many instances, performing better at high speeds and improving a soft ride. Much of the disfavor the 2-ply tire found itself in could be laid at the door of the automobile industry. When the tire was introduced on '62 models, car manufacturers insisted their suppliers would say nothing. They ordered the branding place only on the inside of the tire. By spring 1966, tire makers were revamping the molds so the marking would be placed on the outside. According to their opinion, "when you bring out something and you are proud of it, you should beat the drums and let the world know about it. When you literally sneak it and then customers find out about it, they obviously become suspicious and this can cause some trouble." Quality and performance had been a factor with the 2-ply. The trouble, as most engineers agreed, was psychological. Many drivers were not convinced that something had not been left out of the 2-ply. It seemed obvious that the majority of tire customers still were not convinced of the merits of the 2-ply if replacement sales were any criteria. Out of the estimated 98 million replacement tires sold in 1965, only about 25 percent were 2-ply tires. This was quite an improvement over 1964 though, when only 15 percent were 2-ply tires.⁵⁰ In 1968, the Mark IV and Lincoln lines were introduced with a new radial tire, the Michelin XWW. Ford

⁴⁹ Fred J. Kovac, *Tire technology*, 5th ed. Akron, Ohio: Goodyear Tire and Rubber, 1978.

⁵⁰ André Gueslin (dir.), *Les hommes du pneu. Les ouvriers Michelin à Clermont-Ferrand de 1940 à 1980*, Les Éditions de l'Atelier, Paris, 1999.

was the first domestic car manufacturer to take this path. This opened the door to a greater number of American customers for Michelin.

CONCLUSION

The history of the development of Michelin in the USA can be explained only by considering its products. Although in economic theory industrial specialization can be considered either a strong or weak point, Michelin has demonstrated that to be a tire specialist is a real advantage. Thanks to many efforts made in the R & D field before WWII, Michelin created the radial tire, an invention that changed the habits of drivers throughout the world and especially in the United States. The “radialization”, as it has been called by the scientific community, represents the trend of penetration of this type of tire to the detriment of the traditional tire. This evolution began in France, spread to Europe and finally reached the USA.

A new technique was used to create a new range of products that could be adjusted to any kind of climate or type of work. Differentiation plays an important role in the American market. The agreements signed with some American corporations depended on the innovative range of products that Michelin presented in the New World such as Sears for passenger tires, Caterpillar for earthmover and truck tires and PIE for truck tires. The entire range of Michelin radial tires raised the interest of American customers in tires. Despite the limits of production and delivery which occurred in the early 1960's, Michelin carried on its activities in the USA, increasing its efforts to

continue and overcoming the operating problems. This strategy produced good results so the company decided to open its first production facility in the United States during the 1970's.