Chapter 1 : Sold Classic Raleigh Bikes

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Technology[edit] Steel is an alloy composed of between 0. From prehistory through the creation of the blast furnace , iron was produced from iron ore as wrought iron, The introduction of the blast furnace reversed the problem. If the process of steelmaking begins with pig iron instead of wrought iron, the challenge is to remove a sufficient amount of carbon to get it to the 0. Before about steel was an expensive product, made in small quantities and used mostly for swords, tools and cutlery; all large metal structures were made of wrought or cast iron. Steelmaking was centered in Sheffield, Britain, which supplied the European and the American markets. The introduction of cheap steel was due to the Bessemer and the open hearth processes, two technological advances made in England. In the Bessemer process , molten pig iron is converted to steel by blowing air through it after it was removed from the furnace. The air blast burned the carbon and silicon out of the pig iron, releasing heat and causing the temperature of the molten metal to rise. Henry Bessemer demonstrated the process in and had a successful operation going by By Bessemer steel was widely used for ship plate. By the s, the speed, weight, and quantity of railway traffic was limited by the strength of the wrought iron rails in use. The solution was to turn to steel rails, which the Bessemer process made competitive in price. Experience quickly proved steel had much greater strength and durability and could handle the increasingly heavy and faster engines and cars. The usual open-hearth process used pig iron, ore, and scrap, and became known as the Siemens-Martin process. Its process allowed closer control over the composition of the steel; also, a substantial quantity of scrap could be included in the charge. The crucible process remained important for making high-quality alloy steel into the 20th century. Britain had lost its American market, and was losing its role elsewhere; indeed American products were now underselling British steel in Britain. Britain went from 1. The US started from a lower base, but grew faster; from 0. Germany went from 0. France, Belgium, Austria-Hungary, and Russia, combined, went from 2. During the war the demand for artillery shells and other supplies caused a spurt in output and a diversion to military uses. It was wedded for too long to obsolescent technology and was a very late adopter of the open hearth furnace method. Entrepreneurship was lacking in the s; the government could not persuade the industry to upgrade its plants. For generations the industry had followed a patchwork growth pattern which proved inefficient in the face of world competition. In the first steel development plan was put into practice with the aim of increasing capacity; the "Iron and Steel Act of " meant nationalization of the industry. However, the reforms were dismantled by the Conservative governments in the s. In , under Labour Party control again, the industry was again nationalized. But by then twenty years of political manipulation had left companies such as British Steel with serious problems: By the s the Labour government had its main goal to keep employment high in the declining industry. Since British Steel was a main employer in depressed regions, it had kept many mills and facilities that were operating at a loss. Australia[edit] In Australia, the Minister for Public Works, Arthur Hill Griffith , had consistently advocated for the greater industrialization of Newcastle , then, under William Holman , personally negotiated the establishment of a steelworks with G. Delprat of the Broken Hill Proprietary Co. Griffith was also the architect of the Walsh Island establishment. By the Ruhr had 50 iron works with 2, full-time employees. The first modern furnace was built in The creation of the German Empire in gave further impetus to rapid growth, as Germany started to catch up with Britain. From to World War I, the industry of the Ruhr area consisted of numerous enterprises, each working on a separate level of production. Mixed enterprises could unite all levels of production through vertical integration, thus lowering production costs. Technological progress brought new advantages as well. These developments set the stage for the creation of combined business concerns. Krupp reformed his accounting system to better manage his growing empire, adding a specialized bureau of calculation as well as a bureau for the control of times and wages. In the s Germany produced about 15 million tons, but output plunged to 6 million in Under the Nazis, steel output

peaked at 22 million tons in , then dipped to 18 million in under Allied bombing. Steel corporation in the U. The goal was to move beyond the limitations of the old cartel system by incorporating advances simultaneously inside a single corporation. The new company emphasized rationalization of management structures and modernization of the technology; it employed a multi-divisional structure and used return on investment as its measure of success. The chief difference was that consumer capitalism as an industrial strategy did not seem plausible to German steel industrialists. Germany was a world leader because of its prevailing "corporatist mentality", its strong bureaucratic tradition, and the encouragement of the government. These associations regulated competition and allowed small firms to function in the shadow of much larger companies. It produced 3 million of steel in , 12 million in , 34 million in and 46 million in East Germany produced about a 10th as much. Its industry comprised too many small, inefficient firms. Despite a high national income level, the French steel industry remained laggard. The greatest output came in , at Prosperity returned by mids, but profits came largely from strong domestic demand rather than competitive capacity. Late modernization delayed the development of powerful unions and collective bargaining. Despite periods of innovation â€”14 , growth â€”18 , and consolidation â€—22 , early expectations were only partly realized. Steel output in the s and s averaged about 2. Per capita consumption was much lower than the average of Western Europe. Instead, they reinforced the dualism of the sector and initiated a vicious circle that prevented market expansion. Strong labour unions kept employment levels high. Troubles multiplied after , however, as foreign competition became stiffer. In the largest producer Nuova Italsider lost billion lira in its inefficient operations. From to American steel production grew from , tons to 60 million tons annually, making the U. The annual growth rates in steel â€” were 7. The use of steel in automobiles and household appliances came in the 20th century. Some key elements in the growth of steel production included the easy availability of iron ore, and coal. Iron ore of fair quality was abundant in the eastern states, but the Lake Superior region contained huge deposits of exceedingly rich ore; the Marquette Iron Range was discovered in ; operations began in Other ranges were opened by , including the Menominee, Gogebic, Vermilion, Cuyuna, and, greatest of all, in the Mesabi range in Minnesota. This iron ore was shipped through the Lakes to ports such as Chicago, Detroit, Cleveland, Erie and Buffalo for shipment by rail to the steel mills. Few native Americans wanted to work in the mills, but immigrants from Britain and Germany and later from Eastern Europe arrived in great numbers. By then the central figure was Andrew Carnegie , [36] who made Pittsburgh the center of the industry. In the s, the transition from wrought iron puddling to mass-produced Bessemer steel greatly increased worker productivity. Highly skilled workers remained essential, but the average level of skill declined. Nevertheless, steelworkers earned much more than ironworkers despite their fewer skills. The experience demonstrated that the new technology did not decrease worker bargaining leverage by creating an interchangeable, unskilled workforce. Production was booming, and unions were attempting to organize unincarcerated miners. Convicts provided an ideal captive work force: The competition, expansion, and growth of mining and steel companies also created a high demand for labor, but union labor posed a threat to expanding companies. As unions bargained for higher wages and better conditions, often organizing strikes in order to achieve their goals, the growing companies would be forced to agree to union demands or face abrupt halts in production. The rate companies paid for convict leases, which paid the laborer nothing, was regulated by government and state officials who entered the labor contracts with companies. Steel " [39] Main article: This could not have happened without the prior invention of Bessemer Steel. Eads Bridge across the Mississippi River, opened in using Carnegie steel In the late s, The Carnegie Steel was the largest manufacturer of pig iron , steel rails, and coke in the world, with a capacity to produce approximately 2, tons of pig iron per day. Around that time, he asked his cousin, George Lauder to join him in America from Scotland. Lauder was a leading mechanical engineer who had studied under Lord Kelvin. Lauder devised several new systems for the Carnegie Steel Company including the process for washing and coking dross from coal mines, which resulted in a significant increase in scale, profits, and enterprise value. By , the profits of Carnegie Bros. Carnegie, through Keystone, supplied the steel for and owned shares in the landmark Eads Bridge project across the Mississippi River in St. Louis, Missouri completed This project was an important proof-of-concept for steel technology which marked the opening of a new steel market. The Homestead Strike was a violent labor dispute in that ended in a battle

between strikers and private security guards. The final result was a major defeat for the union and a setback for efforts to unionize steelworkers. Steel and it was non-union until the late s. US Steel By the US was the largest producer and also the lowest cost producer, and demand for steel seemed inexhaustible. Output had tripled since , but customers, not producers, mostly benefitted. Productivity-enhancing technology encouraged faster and faster rates of investment in new plants.

Chapter 2 : History of the steel industry (â€“) - Wikipedia

List of countries by steel production. This is a list of countries by steel production in , , , and from to , based on data provided by the World Steel Association. All countries with annual production of crude steel at least 2 million metric tons are listed.

Chapter 3 : World Steel Production and Prices - theinnatdunvilla.com

The World Steel Association (worldsteel) is one of the largest and most steel dynamic industry associations in the world. worldsteel members represent approximately 85% of the world's steel production, including over steel producers with 9 of the 10 largest steel companies, national and regional steel industry associations, and steel research institutes.

Chapter 4 : List of countries by steel production - Wikipedia

W. T. (), World Steel in the s: A Case of Survival (Lexington,â,¬ Irrationality and Contradiction in Organizational Change. almost half of the worlds steel output; by , its share was less than. 12 percent of this.

Chapter 5 : STATISTICS | worldsteel

How to Cite. Denham, E. W. (), World steel in the s: A CASE OF SURVIVAL, Hogan, William T., SJ, Lexington, Mass.: Gower-Lexington,

Chapter 6 : Steel Vintage Bikes - Gazelle Champion Mondial AB frameset

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The history of the modern steel industry began in the late s, but since then, steel has been basic to the world's industrial economy. This article is intended only to address the business, economic and social dimensions of the industry, since the bulk production of steel began as a result of Henry Bessemer 's development of the Bessemer converter in

Chapter 8 : World steel in the s : a case of survival / William T. Hogan | National Library of Australia

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Chapter 9 : FORTUNE Archive Full List

STATISTICS. worldsteel publishes monthly production statistics for crude steel, direct reduced iron (DRI) and blast furnace iron (BFI). The data is available from the Monthly production section on this page. Historical data from can also be found in the Steel Statistical Yearbook area.