CAUSES AND EFFECTS OF THE INDUSTRIAL REVOLUTION

Overview

The Agricultural Revolution (8000 B.C.E.) and the Industrial Revolution (18th and 19th centuries A.D.) were the two most profound transformations in human history. If one recalls, the Agricultural Revolution in the Near East brought about a significant transformation in almost all aspects of human life. The discovery of farming instigated the domestication of plants and animals, the creation of the first human cities, the development of metallurgy and writing, while also transforming social, political, and religious institutions. The Industrial Revolution, first appearing in late 18th century England, brought about an even greater transformation in human society. The effects of this second great revolution, still in the process of developing even today, are almost endless. Yet a few major changes must be listed:

1. Industrialism changed the scope and nature of work. The rapid explosion of power driven technology brought about the production of goods on a massive scale undreamed of in earlier generations. This expanded production brought about the standardization of products while simultaneously lowering the cost of commodities. Hence, even people of common means could now afford increasing numbers of goods at a rate which would have made previous generations of princes and kings envious.

2. With the introduction of large scale machinery came the creation of factories and the rapid growth of cities. In previous times even within the most advanced cultures of the world, most people had remained farmers living in rural areas. At the height of the Roman, Egyptian, Chinese, and early modern European civilization, approximately 90% of these cultures' populations remained tied to agricultural production. Industrialism changed all that. By the year 1900, most of Western Europe's population would live and work in large-scale urban communities. The rest of the world over the past century has continued to follow this transformation on an ever increasing scale. To be "modern" in the past century is to become a city dweller— to become a "homo urbanicus."

3. Industrialism, in its generation of tremendous wealth, hence tax revenue, has created the possibility for comprehensive social welfare services on an unprecedented scale. Industrial governments have provided public education, health care, public transportation and communication services, unemployment compensation and pension programs. Increased leisure time, higher education, and an increased political consciousness among the lower classes has brought about the growth of democracy. In short, industrialism furthered the liberal political ideals of the Enlightenment and the American and French revolutions— making these ideals achievable in the 19th and 20th centuries.

4. Industrialism created increased leisure time. Urban workers were no longer tied to the unceasing demands of soil, season, and seed. In the late 19th century, increased production, expanded wealth, and the political demands of the urban proletariat brought about the reduction of the work week. Increased leisure coupled with higher consumer income stimulated the creation of recreation services— public parks, expanded theater and professional sports. The twentieth century has witnessed the development of radio, television, and movies.

5. Industrialism even stimulated physiological changes. People became healthier and taller, lived

longer, ate better with an expanded and more diversified diet. They even became sexier. On average, industrial populations have witnessed the drop in puberty rates of approximately one to two years every generation!

6. Like any major transformation, industrialism has created major problems as well. The production of goods and services has put a great strain upon the planet's resources and created massive pollution. Industrial technology applied to warfare has created armaments on a scale of destruction without parallel in earlier times; twentieth century warfare has caused more deaths than in any previous century. Industrial urbanization has uprooted countless millions from the stability and security of rural, tradition-bound life. The extended family has been replaced by the nuclear family, and even this social institution is under increasing stress. Mass production has destroyed craftsmanship and the intrinsic pleasure of work, while simultaneously increasing the psychological distance between employer and employee, producer and consumer. Urbanization has created increased psychological loneliness while also exposing the worker to the abstract and largely uncontrolled economic forces of boom and bust, inflation and unemployment. Increased wealth may result from industrialism, but the trade off in economic, social, and psychological stress is difficult to fully estimate.

CAUSES AND EFFECTS OF THE INDUSTRIAL REVOLUTION

Long Term Causes

Although industrialism did not make itself felt until the last few decades of the 18th century, there were forces at work in earlier centuries which were taking Europe to the threshold of industrial transformation.

As early as the High Middle Ages and the Renaissance, capitalism had emerged as a new economic system. Capitalism stressed materialism, the growth of banking and commerce, individual initiative, and the value of private ownership of property. The Protestant Reformation, especially Calvinism, stressed the virtue of hard work, hence gave further impetus to capitalist expansion. The Renaissance and Reformation also witnessed Europe's aggressive exploration and colonization of areas of the world outside of Europe, opening these markets and resources to Europe's economic advantage. The rise of nation-states during the 16th and 17th century further stimulated economic expansion by building roads, canals, and harbors; establishing navies and royal-sponsored colonization; breaking down local feudal and ecclesiastical prohibitions on trade; standardizing and legally regulating commerce within the country. Increasingly monarchs had recruited members of the rising middle class, hence their values and expertise increasingly shaped national royal policies. The Scientific Revolution, in creating a secular picture of reality, set the foundation for greater understanding, hence control over nature. For example, in order to build a steam engine, one has to understand the scientific principles of energy, pressure, metallurgy, heat, and gasses. The Age of Enlightenment gave Western Europeans a new value in the 18th century— progress. Now history was perceived to be an upward movement; educated Europeans increasingly came to believe that tomorrow provided greater promise for expanded opportunities. The Enlightenment philosophies, in dethroning religion, had argued for the "perfectibility of human society." the idea that liberty, prosperity, and human happiness were realizable goals—here, on earth.

As one can see, Europe, especially Western Europe, had already achieved a level of material prosperity, education and literacy, political stability, and overseas colonization without equal in the world. The average per capita income of 18th century Europeans was already at a scale far beyond the cultures of China, India, Mesoamerica, or the Middle East. Industrialism can simply be seen as an extension and intensification of historical forces already at work in early modern European culture (1400-1750).

CAUSES AND EFFECTS OF THE INDUSTRIAL REVOLUTION

Intermediate Causes

The greatest stimulus for industrialism in the 18th century was a rapid explosion in population, first felt in the middle of the 17th century. Europe's growing population had a major impact upon its economy. Increased food had to be produced, material production had to be expanded as well. Increasing populations put pressure upon available natural resources, especially fuel. Expanded employment opportunities had to be created as well.

To put this in economic terms, an increased population created an increase in demand for almost every conceivable commodity. This created an atmosphere which demanded economic-technological innovation. For increased demand created two new factors:

1. Production of goods had to expand dramatically.
2. Production had to take place at a faster rate.

What caused this population explosion in Europe beginning in the 17th century? Lack of comprehensive information makes this a difficult question to answer satisfactorily, but historians have theorized on diverse, yet interconnecting factors:

1. Europe, following the devastating religious wars of the 16th and early 17th century. witnessed an era of relative peace. European monarchs, in building strong centralized governments, gained greater control over their nation's military, hence increasingly stopped local warfare, consequently brining greater internal stability and peace within their realms. The training and provisioning of troops made 18th century warfare extremely expensive, thus kings were more reticent in committing these soldiers to reckless warfare. As a result, eighteenth century wars were fought more like chess games with greater emphasis upon maneuver, strategy, and diplomacy. Civilian populations were less adversely affected, hence lower mortality rates and less destruction of overall life and property.

2. Exploration and colonization overseas brought in new food commodities which strengthened and diversified Europe's diet. The most important new crop was the potato. High in calories and carbohydrates, yet resilient to adverse climate and disease, the potato spread rapidly throughout Europe in the 17th and 18th centuries, becoming a cheap staple crop of the lower classes. Increased consumption created higher human energy levels, which in turn stimulated higher production, whether it be food, material commodities— or children!

3. Europe's climate changed. The eighteenth century, on average, was the warmest century Europe had witnessed since the 10th century. If one recalls, the 10th century witnessed the emergence of the High Middle Ages, likewise partially stimulated by increased agricultural production and an expansion in the population. A similar result occurred in 18th century Europe. Even if agriculture production increased by a few percentage points, this would have an exponential effect upon population growth.

4. Eighteenth century Europe witnessed a rapid decline in disease. The Black Plague made its last major appearance in the early part of the century. Concurrently, smallpox, dysentery, and cholera also experienced a decline. Certainly the aforementioned factors played a role in causing disease to lessen, but to fully understand this phenomena, modern historians need to do further research. William McNeill, in his work Plagues and Peoples, argues that stronger centralized governments were better able to protect and regulate their national borders, hence stopping the flow of immigration, especially in Eastern Europe, hence disrupting the centuries old migration pattern of peoples and disease from Asia along the silk trade routes into central Europe and beyond.

5. A slow rise in Europe's standard of living possibly brought subtle, yet dramatic changes in living patterns. The replacement of non washable woolen and furs with cleaner cotton garments and blankets lowered the hazards of childbirth and increased hygiene and health generally. The replacement of wooden housing with stone, masonry, and brick better insulated rural populations from the whims of nature, likewise contributing to lower mortality rates. Better chimney construction insured better ventilation, while removal of livestock from human living areas also would seemingly lessen the frequency and possibility of disease.

Summary

In short, all of these factors, to greater or lesser degree, subtly intertwined to create a circumstance unique in human history. The results in population growth were dramatic. During the 18th century we notice the following statistics:

England:	9 million to 16 million
Austria:	20 million to 26 million
Spain:	5 million to 10 million
France:	20 millionto 26 million

To reiterate, Europe's pre-industrial economy, its traditional feudal social structure, its available land could not handle or absorb this rapid population increase. New modes of production had to be found which could meet the growing demand for all kinds of commodities, while simultaneously providing new forms and opportunities for employment.

CAUSES AND EFFECTS OF THE INDUSTRIAL REVOLUTION

Great Britian

As one can see, Europe, especially Western Europe, was prepared for a technological revolution. But England was the first country to respond to the possibilities of industrialism; the reason being there were other factors uniquely operating within this country which pushed her faster towards this profound technological transformation.

1. Great Britain was rich in strategic natural resources, particularly coal, iron ore, and wool. Coal and iron contributed to the growth of iron production, so central to building the infrastructure for an industrial revolution. Iron was necessary in the construction of machinery, especially when higher temperatures were needed in power machinery (e.g. steam engine) or resisting pressure and stress (e.g. railroad tracks). Without iron, two of the greatest industrial machines would not have been able to be produced— the steam engine and the railroad. Notice the circularity in production; that is, how these machines accelerated industrial production. Steam pumps initially removed water from coal mining shafts, railroad tracts allowed the removal of the ore from the mines. Ore then was used to produce iron steam pumps and extended iron tracks, which in turn allowed for the mining of further ore, which in turn... The key to industrial production is not only the application of one form of technology to the expanded production of other goods, but to a product's self-expansion as well.

2. Great Britain had the largest overseas empire of any European power. England's control of North America, the Caribbean, and particularly India, provided raw materials for her growing factories at home as well as providing markets for finished goods in return. Textile production was a key sector in England's industrial expansion, particularly cotton manufacturing. Yet England's climate forbid the growing of this crop at home.

3. England had the most sophisticated transportation system in Europe. She was naturally blessed with abundant rivers. But during the 18th century, these rivers were connected by a comprehensive system of canals, roads, and bridges unequalled on the continent. Consequently, transportation costs were significantly reduced, shipping time was halved, and profits increased accordingly.

4. England had abundant cheap labor. Certainly the rapid rise of population during the 17th and 18th century played an important role. But England also witnessed an intensification of the enclosure movements. That is, the English gentry were converting medieval manors into more profitable, capitalist-oriented farms. To accomplish this, the English aristocracy were enclosing (fencing) in their lands to increase crop production and livestock— particularly sheep production which was feeding the growing woolen textile industry. Land enclosure meant forcing the peasantry off the land, for less labor was needed in the specialized production of these new rural products. Displaced labor was forced to find work in the growing urban factories. Notice again the circularity of this process. Increased sheep production meant more labor in the cities to work the growing textile mills, which in turn would stimulate further enclosure movements, which in turn would encourage greater rural migration... As Thomas Carlyle, the great British historian, observed, "sheep ate men..."

5. Unlike the landed aristocracy on the Continent, England's gentry was not opposed to investing money in middle class business enterprises. In contrast, the French and Spanish aristocracy, traditionally trained in the medieval arts of warfare, looked upon such capitalistic enterprises with contempt— as beneath their aristocratic dignity. Only the French Revolution would change this. In Spain, the aristocracy never really learned. Consequently, the British aristocracy had a jump upon their Continental cousins. There were two reasons for this. Very early England had become a seafaring nation placing greater emphasis upon overseas colonization and trade. England had also experienced its "political revolution" early— in the 1640's. The English Revolution brought Parliament to political supremacy. The House of Commons witnessed a greater communication and cooperation among the middle class and the landed aristocracy in their initial resistance to the king. Their victory over the Stuart monarchy fused these classes into closer continual leadership of the country. Consequently, it was not unusual for these families to intermarry and to invest in enterprises which would stimulate industrial expansion. One extended family could have investments in shipping, textile production, and farming simultaneously.

6. The English Revolution culminated with the Ascension of William and Mary, Dutch rulers, to the English throne. Closer contact with Holland brought in innovative Dutch financial practices. The Bank England was created in 1694, a financial institution which provided a sound currency, stable interest rates, and easy credit. All of these financial innovations encouraged investment because they created a stable economic environment which minimized the risks of business expansion. Parliament passed enclosure acts, expanded the royal navy, encouraged colonization overseas, chartered insurance companies and legalized the idea of "limited liability" (the concept that one is only liable to one's creditors for the amount of money one invests in one's company. The Revolution had also confirmed the idea that private property is immune to government seizure. In short, England's political revolution, occurring over a century before similar continental revolutions, brought the capitalist-oriented middle class into political power. They constructed a government which favored, even encouraged industrial development.

7. England had a sizeable Puritan minority. Although the Toleration Act of 1689 brought religious freedom to people in Great Britain, some civil discrimination remained during the century following. As a result, these Puritans (frequently referred to as non-Conformists or Dissenters) were excluded from English universities and the vocations of the Church and the law courts which followed such training. But their Puritan zeal, coupled with the Enlightenment advocation of progress, stimulated this minority to become the most innovative entrepreneurial class in 18th century England. If one recalls, the Puritan work ethic called for diligent labor, but also discouraged the believer to spend his wealth upon personal "vanities." As a result, profits were frequently reinvested in one's enterprise. Puritan emphasis upon literacy as a necessary skill for reading the Bible also encouraged the Dissenters to establish a large number of primary and secondary schools. By the 18th century these schools had the most advanced curriculum, geared towards vocational training, of any school system in Europe, if not the world. The results were remarkable. Although the Dissenters only made up 15% of Britain's population, over 50% of England's industrial entrepreneurs came from this group!

8. Finally, England being an island also contributed to her industrial development. Isolated from the European continent, she was also immune to its costly wars. As a result, England did not have to spend a large portion of her national income upon maintaining large standing armies— an expensive enterprise which siphoned off valuable resources into military expenditures. She maintained a sizeable navy, but these costs were far less than land forces, which in any case was significantly funded by colonial taxes.

To summarize, although 18th Europe was on the threshold of an economic revolution, England's

SOCIAL CONDITIONS DURING THE 19TH CENTURY - Overview -

Many factors intertwined to create the living and social conditions of the the nineteenth-century. The Industrial Revolution had profoundly changed the economic, political and social characteristics of European society. The working class, swelled greatly in number, was most personally affected by these changes. The composition and experience of the early nineteenth-century labor force was quite varied. No single description could include all of the factory workers, urban artisans, domestic system craftsmen, household servants, countryside peddlers, farm workers, or railroad navvies. The work force was composed of some persons who were reasonably well off, enjoying steady employment and decent wages, It also number the "laboring poor," who held jobs but whose wages allowed them little more than the subsistence. The condition of any particular working-class family depended on the skills of its members, the nature of the local labor market, and the trade cycle. But all of these working people faced possible unemployment, with little or no provision for their security. They confronted over the course of their lives the dissolution of many of the traditional social ties of custom and community. Most of the economic relationships in their lives became those of the marketplace. The following paragraphs are examples of the conditions experienced by many people during this century. Some are original source documents in the words of the people of the day, while others are historical descriptions.

Living conditions in the cities were terrible. Families were crowded together in jerry built tenements or in the cast off housing of the rich. They lived in attics and cellars, sometimes only in one room, sometimes in the corner of one room. In one house in Spitalfields, a London slum, 63 people lived in 9 rooms, each of which had only one bed.

New housing was, to quote the Royal Housing Commission, "altogether unfit for people to live in." Walls were sometimes only a half a brick thick, and the builder skimped on windows to avoid the government's revenue-raising window tax. Drainage was wholly inadequate and sanitary facilities were often non-existent. Sewers were open trenches running down the middle of the street. Pure water was a luxury, and parks and
trees in working class areas were non-existent. Drinking water often was brown with fecal particles, corpses were kept unburied for two weeks in hot August, festering with maggots....great epidemics of cholera typhoid and typhus raged through the growing cities until the latter part of the nineteenth-century.

As the English scholar G. M. Young noted, " one can hardly apprehend the horror which thousands of families, a hundred years ago were born, dragged out their ghastly lives, and died."

Working class parents thought nothing of drugging their babies with opium to keep them quiet, or putting small children out on the streets to roam for themselves. Charles Dickens captured many of these circumstances in his novels, such as Oliver Twist and David Copperfield. "Vice is in every glance of their eyes."

In the Paris slums the Concourt brothers searching for materials for novels noted:

> "beggarly children laughing ferociously as they watched a young man being attacked and beaten to the ground. Meanwhile the gathering crown feasted its eyes like a circus audience upon this butchery without the slightest evidence of revulsion."

One midnight in the 1860's a reporter for the New York World stood on London bridge and looked over the port of the richest city of Europe.

"The Thames lay at our feet, below us to the left and right, up and down the river rose the London docks full of shipping....but underneath the bridge, in the shelter of its arches was a perfect gypsy encampment of human wreckage. Eight of these persons were of the male sex, and beside these were two haggard looking women and a grown girl of twenty, and a child of ten, in all the glory of rags and destitution.

The end of feudalism freed them from serfdom but also freed them to starve. With no property of their own and no use for rural skills, they were entirely dependent upon the capitalists who owned the factory or mine. When the capitalist needed workers, he might pay well, but when goods were plentiful be paid what he chose - sometimes less than a living wage. He could even lock the workers out of the factory.

In Belgium in 1885 - the annual report of the inspector-general of prisons disclosed that the amount spent on feeding and clothing one convict exceeded the yearly wages of a whole family of workers.

In 1860, a county magistrate in Britain reported that children employed in Nottingham's lace trade were "dragged from their squalid beds at 2 a.m. or 3 or maybe 4 and compelled to work for bare subsistence until 10, 11 or 12 at night, their limbs wearing away, their frames dwindling, their faces whitening and their humanity absolutely sinking into a stone-like torpor, utterly horrible to contemplate."

Between 1800 and 1900 the European population more than doubled - there were more Englishmen in cities than in rural areas by 1851, by 1901 it was 3 to 1. London with a population of 4.5 million, held one-tenth of population of England and Wales. Paris and Berlin were quickly developing similar percentages in their own countries.

Migration was also the mark of the times, and people fled across national frontiers and oceans. Irish fled Ireland by the thousands during the great potato famine of the 1840's, the Jews fled Poland in the 1880's to escape anti-semitic pogroms. Between 1871 and 1900 some 25 million people left Europe for the promise of America, Australia and other parts of the world.

THE FOLLOWING ARE EXCERPTS FROM ORIGINAL SOURCES.

Social Conditions in The 1800s

At the present time, there are three children, one 7, one 8, and another 10, all of whom were undergoing confinement in separate cells in the Clerkenwell penitentiary. The youngest child has been convicted at Manchester of having stolen certain goods which the mother had received, knowing them to be stolen property. The child was sentenced to transportation and the mother to six months' imprisonment. Since the child's years would furnish sufficient proof that she could not be fully aware of the nature of her offense, the child's sentence was commuted to solitary imprisonment under the separation system.

Testimony of Mr. Hoare, a visiting justice at the Clerkenwell House of Correction, to the London Court Sessions, 1838

A personal letter written in Great Britain 1820:

"The unhappy dislocation which has taken place between the Employer and those in his employment is owing to the steam engine. When the machinery was driven by water, the manufacturer had to seek out some spot where he could obtain a suitable fall of water, and then his workmen formed the inhabitants of a village around him, and he necessarily bestowed some attention, less or more, on their morals and on their necessities, had knowledge of their persons and characters, and exercised a healthy influence as over men depending on and intimately connected with him and his prospects. This is now quite changed; the manufacturers are transferred to great towns, where a man may assemble five hundred workmen one week and dismiss them the next, without having any further connecting with them than to receive a week's work for week's wages, nor any further solicitude about their future fate than if they were so many old shuttles. . . . '

From Walter Scott, *Familiar Letters*, 1894

Impressions of a Manchester spinner, 1818:

"Locked up in factories eight stories high, [the worker] has no relaxation till the ponderous engine stops, and then he goes home to get refreshed for the next day; no time for sweet association with his family; they are all alike fatigued and exhausted. This is no over-drawn picture: It is literally true . . . . When the spinning of cotton was in its infancy, there was work for all, and at a proper pace, and in the community of family and friends. This was before those terrible machines for superseding the necessity of human labour, called steam engines, came into use . . . and workmen lost their power over their labor."

From *Black Dwarf*, 1818

Recollection of a child laborer in a British textile mill:

"For several years after I began to work in the mill, the hours of labour at our works did not exceed ten in the day, winter and summer; and even with the labour of those hours, I shall never forget the fatigue I often felt before the day ended, and the anxiety of us all to be relieved from the unvarying and irksome toil we had gone through before we could obtain relief by such play and amusement as we resorted to when liberated from our work. I allude to this fact because it is not uncommon for persons to infer that, because the children who work in factories are seen to play like other children when they have time to do so, the labour is, therefore, light, and does not fatigue them. The reverse of this conclusion I know to be the truth. I know the effect that ten hours labour had on myself . . . ."

From John Fielden, *The Curse of the Factory System*, 1836

A miner relating his experiences working in a German coal pit early in the twentieth century:

"The work is becoming increasingly mechanical. No more incentive, no more haste, we muddle along wearily, we are worn out and mindless. My forehead burns like fire. As a consequence of the anemia from which I suffer, I occasionally experience a slight dizzy spell. But in my head it rages and paralyzes me beyond control or without my being able to think. When it becomes unbearable I stop my slow, energy less working. I then sit on the side wall of the mountain in order to slurp the last remaining coffee . . . . And that is not all; the spirit too, the conscience of the individual, degenerates. And one drudge, grown vacuous through his work, is put beside another one, and another one and finally this 'modern' circle has closed in on the entire working force."

From Adolf Levenstein, *Aus der Tiefe, Areiter Briefe (From the Depths: Workers Letters)*, 1905

Delinquents are born thieves. It is their inheritance. They form a caste of themselves, having their peculiar slang, mode of thinking, habits, and art of living.

John Wade, *A Treatise on the Police and Crimes of the Metropolis*, London, 1829

Young thieves have often confessed to me that their first attempts at stealing began at apple stalls. Acquiring confidence by a few successful adventures, they have gradually progressed in crime. They find companions to cheer them and instruct them, girls to share their booty and applaud them. Imprisonment in so punishment. It's no matter to him where he exists as long as he has food and some clothing. In fact, many lads have admitted to me that they learned more in jail than out of it.

Mr. W.S. Miles, Esquire, *Report on Prison Discipline*, presented to the House of Lords, 1835

One grand cause of depravity and crime in children is the vice of their parents, who often educate their offspring in the art of thieving and live upon the proceeds of their children's depradations. In speaking of three children whose lives of crime he relates, Mr. Rushton observes, "These lads have been trained by a vicious father to the work of plunder. He has taught them how to steal with dexterity, and he uses them as a means of supplying himself with a luxurious existence."

Unless the evil power of the parent be destroyed and his mischievous teaching counteracted, it is clear that no valid hopes of reformation can be obtained.

Report of an address to the Town Council of Liverpool by its magistrate, Mr. Rushton, *The Times* of London, August 21, 1850

The scanty wages given to many forms of labor, as well as the high price of rent and provisions, make it almost impossible for a man alone to support the family. Hence, most of the wives of the unskilled workpeople have to forego their maternal duties, and devote themselves to some kind of drudgery to add to the petty household income. If then the mother be away from home the greater part of the time, and the children be left to gambol in the gutter with others as neglected, what reward can society look for from this moral anarchy and destitution? Here is the real explanation of juvenile delinquency.

H. Mayhew and J. Binny, *The Criminal Prisons of London*, 1862

Industrial Schools are credited, we believe justly, with having broken up the gangs of young criminals in the larger towns; with putting an end to the training of boys as professional thieves; and with rescuing children fallen into crime from becoming habitual or hardened offenders. Undoubtedly, they have also had the effect of preventing a large number of children from entering a career of crime.

Royal Commission Report, *Parliamentary Papers*, 1884

Report by the owner of a textile factory in Lille, France:

"It is simply false to equate the hours of work in our factories with arduous work. My workers, for example, in principle put in ninety hours a week, but I am lucky to get seventy-two hours of work from them. They seize on any occasion to wander around the factory or even walk outside, land to chatter with each other. Sometimes I think that they do not know what work is, and can be made to work only against their will. Really, they are like children, but I wish we could get them to work as hared as our own schoolboys work. I will admit that my second generation of workers, who grew up in the factory, are somewhat more amenable...."

From *Archives Nationales de France*, F124705, "Report of Barrois," 1837

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