PART I

History According to Cattle
History According to Cattle

For thousands of years history has been written from the perspective of a small minority, humans. Still, the world has always been shared by numerous species. For the first time in history a non-human form of life will have their own museum, an institution that makes their experience of this shared reality visible.

The Museum of the History of Cattle exhibits bovine culture and the relationship between cattle and their companion species. The installations explore the changes in bovine landscape, caused by urbanization, the industrial revolution, and the theory of evolution, and studies the indigenous cattle populations.
Entrance to the museum. The Museum of the History of Cattle is the world’s first ethnographic museum portraying the history of a non-human species.
THE AGES OF CATTLE
In cattle culture, history is divided into three time periods. The Time Before History includes the history of cattle before the domestication of humans. After this comes the Time of History, which for many if not all cattle begins about 10,000 years ago, when bovine culture became intertwined with the culture of humans. The Time of History ended one hundred years ago, when human industrial society made it impossible for cattle to pass on their heritage to later generations. During the Ahistorical Period, cattle were cut off from awareness of their own culture in many parts of the bovine world. The Museum of the History of Cattle has been created to fill this void.

The museum presents different cultural phases and the relations between cattle and their closest companion species, turning points in the species’ traditions, and the influence of their human companions on the course of cattle history. The world has never before seen an exhibition of this kind. The language used in the Museum of the History of Cattle is borrowed from humans, and is the same as that in which they write their own history. The cattle tongue is not a written language. In cattle culture, the tongue is a means of touching others. Like the cattle themselves, the Museum is only looking for temporary resting places, after which it will again take a few steps in another direction.
A milker from the 1970's.

Human use milkers to collect cow's milk for their own purposes.
on syntyyn palkkaamaan tata aukkoa.


**THE TIME OF CATTLE**

In cattle culture, history is divided into three time periods. The Time Before History includes cattle history before the domestication of humans. After this comes the Time of History which, for many if not all cattle, begins about 10 000 years ago when the bovine culture became entwined with the culture of human. The Time of History ended one hundred years ago when human industrial society made it impossible to pass down the heritage to later generations. During the Historical Period, cattle were cut off from their cultural awareness in many parts of the bovine world. The Museum of the History of Cattle has been created to fill this void.

The museum presents different cultural phases and cattle relations to their closest companion species, junction points in the species’ traditions, and the influence of their companions on the course of cattle history. The world has never seen an exhibit of this kind. The language used in the Museum of the History of Cattle is borrowed from humans, and is the same in which they write their own history. The tongue of cattle is not a written one. In cattle culture, the tongue is a means of touching others. Like the cattle themselves, the museum is only looking for temporary resting places, after which it will again take a few steps in another direction.
The Time Before History

Unlike human culture, cattle culture is not a linearly perceived historical continuum. For cattle, time is cyclic. Neither the past nor the future are of great importance; existing is what matters to bovines. It has been thus ever since the first ruminant trod the Earth.

From one millennium to the next, unchanging rituals helped individuals to recognize their roles in society, and offered security amid the exigencies of life. The cultural stories lived on in the bodies of their narrators, in quiet grazing. They changed little by little, or if need be, very quickly, since cattle are adaptable. The greenest pastures, techniques of repose, respect for the value system, caring for calves, and mating conventions are learned through watching, listening, and by following intuition. Because cattle culture recognizes no gods, the question of the origin of inner knowledge can be cast aside with the swish of a tail.
The Hall of Indigenous Cultures.

On the right: vegetation from the grazing lands of the indigenous Banteng populations. In the glass case: replicas of ancient Auroch hoof prints (1 million - 627 years, human time).
India, two million years ago
A white cow and a dark bull mate and the Aurochs are born. From India’s vast pastures, the Aurochs wander Eastward and Westward, as far as the great grasslands extend.

Iran, ten thousand years ago
A herd of eighty Aurochs graze by the river in which the Tigris unites with the Euphrates. They are the ancestors of cows and bulls that will later on live with humans.

Jaktorów forest, three hundred and eighty-six years ago
Persecutions and the diminishing habitats drive the last of the Auroch family to seek refuge in the thickest forests in Europe. The last cow lives alone for seven years until she dies of old age.
THE TIME BEFORE HISTORY

Unlike human culture, cattle culture is not a linearly perceived history continuum. With cattle, time is cyclic. Neither past nor the future are of great importance; it is what matters to bovines. It has been so ever since the first carnivores took their birth.

From one millennium to the next, the unchanging chews helped reflect to preserve their roles in society and offered security in the radical rearrangement of life. The communities lived on in the bodies of the narratives, in the grazing. They transformed too, if it had to be, very quickly, since cattle are adaptable. The narratives continued in the reposing, respect for the value system, strong for tales, and many communities were learned, through listening, and by following each other. Because culture recognizes no gods, the question about the origin over the creation of the world with the swish of a tail.
Vegetation from the Banteng’s home environment.
Indigenous Peoples

Our wild relatives live far away from here, in East and Southeast Asia. These natives, known as gaurs and bantengs, graze in forests and on the surrounding meadows. Bantengs are the same size as we are, while gaur bulls grow to a respectable one-and-a-half tonnes. Only a handful of land-based species are bigger than that. Gaur societies are matriarchal. The bulls roam around alone or with other bulls for the better part of the year, and come to salute the cows every spring. Bantengs form looser groupings.

Gaurs and bantengs generally avoid humans. In the areas most disrupted by humans they have become nocturnal, since humans are creatures of the day. When unable to avoid them, gaurs exploit humans by grazing their land. A sensible human will give way to a gaur. Bantengs show themselves to humans so infrequently that they consider the banteng a mythical creature.

The herd will protect its calves from tigers, but even gaurs are no match for an armed human. Humans have actively endangered the very existence of the indigenous inhabitants, with many populations already totally extinct. On the other hand, humans have helped bantengs to return to freedom. They were taken to Australia as livestock, but, after humans did a bit of rational thinking, were released into the wild. In a little over a century, they have built up a large local population in the continent's tropical forests. While being non-natives, the bantengs in Australia live in symbiosis with the endemic bird species, and do not harm the ecosystem – an example of our remarkable adaptability. Many humans recognize the gaur from the illustration on an energy-drink can.
The Historical Period

Ten thousand years ago, humans came across cattle. Human culture was revolutionized, thanks to the bovine contribution to work.

Cattle shaped the land from which man got grain. He invented property, trade, slavery, the State, war, and writing systems. Man now had spare time. He recognized his own mortality, and so he invented history. He wanted to trace the landscapes of the past so as to record the spirit of yesterday. Not seeing that life just happens, he tried to bind the details of days gone by into a single, coherent story.

Writings are holy to man. What he once defines as history he forever considers the truth. Even so, man is still searching for the limits of memory. Then, one day, all human languages will die, the skill of writing will be forgotten, and the tools for recording rot away.

When human and cattle cultures met, the latter was also much changed. Cattle culture adapted to become part of the human world and its ambitions, both good and bad. Bovines shared with humans, not only their homes, but also their technology, the pursuit of the ideal body, and ultimately, death.
The diorama of companion species.
On the left: Housefly (Musca domestica).
On the right: Human (Homo sapiens)
Companion Species: Homo sapiens

The “rational human” (Homo sapiens) is the last surviving species of the genus Homo. Humans grow up to 200 cm in height and weigh up to 150 kg. Some individuals can weigh even more. Humans have only two legs and two other limbs – arms. There is little sexual dimorphism between the two sexes, and yet individual humans frequently try to create differences. Humans also consider it important to distinguish themselves from other species. Humans have spread all over the Earth and into some parts of space, too. Currently, there is a lively discussion about whether, and where in the universe, we should start to regard humans as an “invasive alien species”, this being a term invented by humans themselves. Like houseflies, humans prefer to be indoors, to transmit diseases, and to pollute places with their excrement.
Companion Species: Musca domestica

The "housefly" (Musca domestica) is a species of fly. The species' name comes from its preference for living in man-made spaces. The housefly's life cycle has three different stages: larva, pupa and, eventually, adult. The adult has two wings and six legs. The larva has neither. An adult housefly is 5–8 mm long, growth stops after the pupa stage. A housefly lives up to four weeks. The mating habits of the housefly are similar to those of humans, the act itself lasts from several seconds to a few minutes. Houseflies are attracted to the orifices of other species, because they contain fluids that the fly can suck up. Houseflies' food has to be in liquid form so that they can suck it in. Houseflies secrete saliva in order to swallow their food, just like humans do. The essential difference between the two species, though, is that humans chop up their food inside their mouths.
On the right: the inseminator.
“In dealing with a flock of any kind, the shepherd or cow-herd, or the keeper of horses or any such animals, will never attempt to look after it until he has first applied to each group of animals the appropriate purge—which is to separate the sound from the unsound, and the well-bred from the ill-bred, and to send off the latter to other herds, while keeping the former under his own care; for he reckons that his labor would be fruitless and unending if it were spent on bodies and souls which nature and ill-nurture have combined to ruin, and which themselves bring ruin on a stock that is sound and clean both in habit and in body,—whatever the class of beast,—unless a thorough purge be made in the existing herd. This is a matter of minor importance in the case of other animals, and deserves mention only by way of illustration; but in the case of man it is of the highest importance for the lawgiver to search out and to declare what is proper for each class both as regards purging out and all other modes of treatment.”

Plato. Plato in Twelve Volumes, Vols. 10 & 11
Translated by R.G. Bury.
Haukilammen Joplin is a heifer who has been bred to be a part of the ASMO nucleus herd. ASMO is a breeding program that aims at strengthening the Ayrshire breed. ASMO produces embryos of high quality from tested elite animals and bulls of high genetic merit for artificial insemination. If Joplin’s ova are considered qualified enough she will be inseminated and serve as an ASMO dam who produces embryos for sale.
The Family Tree of Haukilammen Joplin (2012 - unknown).

The blank areas denote family lines that are represented two or more times. Most cattle parents are related.
The Hall of The Time of History.
On the right: the inseminator.
In the glass case: the inseminator’s hand, lubricant, scissors, semen straws, tissue.
On the left wall: the historical continuum of the science of the improvement of human and cattle bodies.
The inseminator’s hand (left) and lubricant (above) are used in insemination.
HISTORIANN AIKA

Kymmenen tuhatta vuotta sitten ihminen kohtasi naudan ja noudaan työn ansioista ihmisen kulttuuri mullitsui.


Ihmisen ja noudan kohtaamisessa myös noudan kulttuuri muuttui. Nautika kulutti sopeutui osaksi ihmisen maailmaa ja sen pyrkimyksiä, hyvässä ja pahassa, joka ihmisen kanssa paisi kodin, myös ruuminkuvan, teknologian ja kuolemän.

THE HISTORICAL PERIOD

In thousand years ago, humans encountered cattle. Human culture was revolutionized thanks to the bovine contribution to work.

The cattle drags humans into this world. The cow produces milk, meat, birth, and many other things. Men once had spare time to consider the animals in the human world. He wanted to trace the footsteps of the past, to record the spirit of yesterday. And seeing the first herd that life took on, he tried to track the details of this group. This became a strong memory. As children are born to trace their path. The way they move, to ask them, to how they move, to hear them. How much is still not ready for the boundaries of memory. But we can find all human languages at the end of the world today, and the tools of recording these.

As the human and cattle culture was assimilated, the latter was also much changed. Cattle culture absorbed, or, in some parts of the world, the cattle were born. Good and bad. Humans shared with humans, joyfully, they learned. But after these technologies, the cattle is not the only one who rules. It wants to be loved.
**1910 Eugenics Record Office**

The Eugenics Record Office is founded in New York. It concentrates on eugenics and the genetics of humans. The intention of the office is to chart heredity and to be in charge of procedures related to sterilization. The main focus groups of the United States sterilization programs are the mentally retarded, but also the reproduction of deaf, blind, epileptic and deformed people is restricted with the aid of a forced sterilization program. The people in charge of this program are white, and the programmes are focused especially on other races.

The Eugenics Record Office merges with the Station for Experimental Evolution in 1920. ERO ceases its activity in 1944.

**1912 The First International Eugenics Congress**

The first international congress on eugenics is arranged in London and headed by Leonard Darwell, son of Charles Darwin. The congress is sponsored by the American Breeder's Association.

**1912 .Eugeniekirjastoa Kirjastokirjasto Kirjastorooma**

HISTORIANKI

Kymmenen tuhatta vuotta sitten ihminen kohtasi naudan, ja naudan työn ansiosta ihmisen kulttuuri muistui.


Kirjoitukset ovat hänelle pyhä. Sen, mitä kerran historiaksi määrittelee, hän ottaa totuutena. Yhä edelleen ihmisiä hakoneen muistamisen rajoja. Sitten eräänä päivänä kielekset kulevat, kirjoitustaidot unohtuvat ja tallentamisen välineet tuhoutuvat.

Ihmisen ja naudan kohtaamisessa myös naudan kulttuuria muuttui. Nautakulttuuri sopeutui osaksi ihmisen maailmaa ja sen pyrkimyksiä, hyvästä ja pahassa, joka ihmisessä kanssa paitoi kodin, myös ruumilukuvan, tekniologian ja kuoleman.

THE HISTORICAL PERIOD

Six thousand years ago, humans encountered cattle. Human culture was revolutionised thanks to the bovine contribution.

The cattle cleared the land from which men got grain. He invented property, trading, slavery, the State, war, and writing systems. Man now had spare time. He realized his mortality so he invented history. He wanted to trace the landscapes of the past to record the spirit of yesterday. No matter what life just happened, he tried to tie the details of that scene into a single coherent story, making us how to men. What he wrote dries as history he forever considers the truth. Even utopians are searching for the boundaries of memory. Then one day all human languages died, the skill of writing is forgotten, and the task of recording decay.

As the human and cattle cultures encountered the latter was also much changed. Cattle culture adopted to be part of the human world and its emotions, both good and bad. Routines shared with humans not only their homes but also their technologies, the pursuit for the ideal body, and the theocratic death.
Ajallisesti ja paikallisesti kokonaiskuvan särkeminen kuuluu ihmisen kehittelemään teolliseen yhteiskuntaan. Kaikki kulttuurin osalliset ovat osia ylhäältäpäin hallitussa kunnossa, jota kukaan sen sisälle joutunut ei voi kokonaisuudessaan nähä. Koska yksilöiden tehtävät ovat eriytettyjä, heillä on jokaisen osan voi korvata uudella.


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THE AHISTORICAL PERIOD

For as long as humans have recorded history they have understood the value of a foundation for group identity and strength, in order to control others, children from the parents, forbid languages, destroy cultural heritage and their mastery to alien spheres of life.

Shattering the coherence of what used to be apprehensible is a feature of modem society. All the participants in this culture are mere components in a machine. A machine can not quite see the mechanism in its whole. Individual tasks, because of the machine may easily be replaced.

Aiming for efficiency, humans cut off cattle history, intergenerational ties, the silent heritage become but meaningful meaning of a mother for her children living with their mothers, let alone having one day offspring of their own wisdom to. In the bovine narration the history starts anew every second interrupted.
The Ahistorical Period

For as long as humans have recorded history, they have understood the significance of heredity as a foundation for group identity and strength. In order to control others, humans separate children from their parents, ban languages, destroy cultural heritage, and transfer the objects of their mastery into alien spheres of existence. Shattering the coherence of what used to be comprehensible is a feature of human industrial society. All the participants in this culture are mere components in a machine. Even those in control cannot quite see the mechanism in its entirety. With individual tasks being differentiated, any part of the machine can easily be replaced.

In their quest for efficiency, humans put an end to cattle history. Intergenerational threads were broken, and the silent heritage became no more than the mournful mooing of a mother for her child. Few are the calves that live with their mothers, let alone one day having offspring of their own to whom to pass on their life wisdom. In the bovine narrative, history starts anew every second, but is repeatedly interrupted.
The Hall of Industrialization (installation view).
Semen can be collected from a bull in several ways: by using an “artificial vagina”, electro-ejaculator, or massaging by hand. In the picture: semen of Kalliomäen Sauli.
The fates of cattle

Female calf, born from a good dam on a dairy farm. Weaned during her first day. Life expectancy 4–5 years. Products: milk, calves, meat, leather.

Male calf, born on a dairy farm. Weaned during his first day. Life expectancy 18 months. Products: meat, leather.

A calf born on a dairy farm. Weaned during his or her first day. Life expectancy from couple of days to a few weeks. Products: better grade leather, meat.

A calf born on a beef farm. Weaned at six months. Life expectancy 18 months. Products: meat, leather.

Above: objects of control functioned as interfaces between human ideology and cattle daily life.
Below: human reasoning.
ENERGY
Energy was the capacity of a force, object or system to do work. It could take different forms, such as kinetic or thermal energy, and could be converted into other forms during the process. In a closed system, such as the universe, the amount of energy was constant. Creation or destruction of energy was impossible. The universe contained the same amount of energy ever since it came into existence. Entropy increased when energy was converted from one form to another, and energy was evenly distributed across the cosmos.

STEAM POWER
Steam was developed as a source of power over nearly two thousand years. The first functioning steam-engine mechanism was the fire pump, created by Thomas Savery in 1698. Together with the smith and lay preacher Thomas Newcomen, Savery further developed the steam engine and patented it in 1705. However, the engineer James Watt was credited with inventing it, as he further developed Savery and Newcomen’s invention. Watt’s invention enabled the construction of several industrial applications. Steam engines became popular for use in transport vehicles, trains, and boats. Steam power was of great importance for the Industrial Revolution.

The accelerating pace of industrialization led to pressure to intensify energy production. Sir Charles A. Parson continued developing steam power, and patented the steam turbine in 1884. This was several times more powerful than the steam engine, and quickly replaced it.

In the 2000s, most of the world’s electricity was produced by steam turbines. In power plants the steam was generated with solar power, by burning fuel in a steam boiler, or with a nuclear generator.

FOSSIL FUELS
The industrialized nations began large-scale consumption of coal in the 1800s. In the next century, oil became an equally popular source of fuel. Natural gas and peat were also used. These fossil fuels were virtually non-renewable. They originated from ancient organisms that had decomposed. When burned, fossil fuels released carbon dioxide. Carbon sinks, such as oceans and forests, could bind only half of the total carbon emissions. The rest entered the atmosphere and accelerated global warming.
INDUSTRY

Industry was the tool with which Nature’s resources were transformed into products. Capital, raw materials, energy, a workforce, transport infrastructure, and a favourable market situation were required to power industry. The use of machinery and factory buildings were essential to industry. Technology and science were harnessed to serve industry’s needs. Industrialization began in the 18th century, and continued to grow into the 2010s. The purpose of industry was to make a profit.

PRIMARY PRODUCTION AND MANUFACTURING

Manufacturing industrial products was more profitable than producing raw materials, consequently primary producers were left financially less well-off than processing manufacturers.

THE FACTORY

An industrial production unit where workers used machinery to manufacture products. During the Industrial Revolution in the 19th century, with increased production volumes and advances in technology, factories became common. One of the first machines used in modern factories was the Spinning Jenny, which revolutionised the textile industry. Workers opposed the introduction of the machine for fear of losing their jobs. Assembly lines accelerated the growth of factories. As a result of automation, robots increasingly carried out the actual work, so that fewer workers were needed.
**THE LABOURER**

A labourer was someone who did physical work in the paid service of another. Labour was considered to be any physical or assisting work requiring no special skills. Such work was highly susceptible to accidents. Labour itself changed very little during the course of history. Thanks to the trade unions, labourers’ wages were comparatively high during the 2000s; labourers earned the same as someone with a Bachelor’s degree. Labourers were often entitled to health care and other benefits.

**FORDISM**

A social system named after the industrialist Henry Ford, Fordism was based on industrial mass production and standardization. Fordism referred to an industrial system aimed at mass-producing large amounts of cheap consumer goods. Employees who carried out the practical work were relatively well-paid, which meant they could actually buy the commodities that they produced, thus boosting the spread of this type of production.

**SCIENTIFIC MANAGEMENT**

In the early 1900s, the mechanical engineer Frederick Winslow Taylor devised ways of making industrial production more efficient. Systematic observation of work processes and analysis-based studies laid the foundations for a theory for maximizing economic profit. Taylor developed the principles of scientific management, which included division of labour, choosing appropriate workers for specific tasks, separating the planning of work from actually carrying it out, performance-based evaluation, and the standardization of work.

Scientific management enabled the transfer of control over work from workers to managers, and the separation of practical work from the planning of it. The possibility for workers to get an idea of the entire work process, and consequently to influence the value attached to it, decreased significantly as control over the work process shifted to the managerial and planning sectors. In the early 1900s, workers and trade unions opposed this practice. The principles of scientific management were rapidly adopted in nearly all areas of society in Europe and the United States.
THE ASSEMBLY LINE

Swift & Company's slaughterhouse in Chicago used an assembly line in the early 1900s. It was easier to slaughter and dismember animals when the work was divided into stages. The efficiency of this approach made an impression on the engineers at the Ford Motor Company, except that they used the assembly line to assemble things instead of disassembling them. Industrial mass production began with the production of the company's Model T Ford. Mass production quickly superseded craftsmanship and allowed the application of scientific-management theories. Both workers and the individual components of products could easily be replaced by more efficient ones. The intensification of production lowered costs and the price of the finished product. The transition to mass production had a significant effect on the spread of private automobiles in the United States.

STANDARDIZATION OF WORK

All technical and administrative processes related to work efficiency, working conditions, workstation layouts, work performance, quality standards and tools used, were streamlined and standardized. The standardization of work was usually followed by standardization of the expected duration of each task. The goal was to cut costs, achieve higher productivity, boost work performance, improve overall safety, and develop work-related skills.

In the 2000s, a large part of the work done on assembly lines was automated. The original goal of assembly lines was to decrease employees' risk of accident and to cut costs, e.g. by automating the moving of heavy objects and by having work areas fixed in one place. In fact, repetitive labour increased the risk of injuries, and stress-related diseases became more common among workers.
MASS PRODUCTION
Assembly lines and more efficient labour made it possible to produce identical products in large quantities. The kilogram was the unit of mass, and the tonne for larger masses. Regardless of the product, everything could be calculated in kilograms and tonnes.

THE PRODUCTION CHAIN
Producers specialized in different stages of the manufacture of a product. With each stage the value of the product increased. The objective of the process was to deliver the finished product to the consumer.

THE CONSUMER
In order to sustain growth, industrial production needed buyers to buy the goods it produced. The consumer was born at the turn of the 19th and 20th centuries, along with the expansion of the middle class and the greater availability of consumer products. Previously self-sufficient people went from one end of the production chain to the other, becoming buyers and users of the finished products. Buying everyday commodities became a normal, even a desirable habit.
THE SOCIOECONOMIC GROUP
In industrialized societies, the population was divided into vagrants, workers, agrarians, the middle class, the bourgeoisie, and the nobility. The groups separated out into their own residential areas, practised their own hobbies, and lived according to their own consumer habits. By the end of the 1900s, the middle class had become the biggest socioeconomic group in the industrialized nations.

THE 1 PERCENT
By the year 2000, both the wealth of nations and the income gap in societies had widened so much that 1 percent of the world’s adult population owned 40 percent of the world’s wealth.

OCCUPY WALLSTREET
The demonstrations in September 2011 were a consequence of the on-going economic crisis, and of peoples’ frustration with the widening income gap. This was linked to the broader Occupy movement, whose ideology held that big companies and the global financial system rule the world, benefiting only a tiny elite and undermining democracy. Occupy Wall Street’s slogan was ‘We are the 99 percent’. The movement spread to other countries as well. According to Republican presidential candidate Mitt Romney, the demonstrators’ critique was no more than a mask for their envy, and an incitement to class war.
SURPLUS VALUE

Employers calculated a specific value for labour, and paid only a fraction of this to their employees.

SLAVERY

In slavery, a person was considered to be the property of someone or something. Slavery came into existence along with agriculture, as increasing amounts of manpower were required for the heavy labour of making fields.

During ancient times, the economy was based largely on slave labour. Those who were enslaved were primarily prisoners of war, but also debtors or orphans. The Arabs procured their slaves especially from Sub-Saharan Africa. During 650–1900, roughly 14 million slaves were transported to Arab countries. After migrating to the Americas during the 15th century, Europeans also began importing African slaves on a grand scale. An estimated 12 million African slaves were transported to the American continents.

North Africans, in turn, captured over a million slaves from Europe in the 16th to 19th centuries. Human slavery was particularly prevalent at the dawn of the Industrial Revolution in the 18th century, when demand for agricultural goods increased. Slavery was an essential part of the national economy in rapidly industrializing countries.

The anti-slavery movement began in Britain at the end of 18th century. In the United States slavery was abolished as a result of the Civil War of 1861–1865. The availability of cheaper wage labour accelerated the ending of slavery. Russia freed 50 million serfs because population growth had made slavery unnecessary.

Officially, human slavery had been abolished all over the world by the 2000s. In the 2010s, 27 million people lived in slavery.
FOREIGN DIRECT INVESTMENT
The colonies of the industrialized nations provided cheap natural resources, which were further processed in their "mother countries". Later on, businesses would move a large portion of their production to countries with cheap labour and lower production costs, where workers' rights were less developed than in the companies' homelands. One of the first cheap-production countries was China. China later became wealthy and made the largest foreign direct investments.

CALCULATION
Archaeological studies suggested that people had been doing calculations for over 50,000 years. The first things to be calculated were the size of a group, numbers of prey animals and predators, and amounts of property and debt.

LEAN PHILOSOPHY
Toyota was a Japanese corporation that was manufacturing more than 100 million cars a year by 2013. A management philosophy called Lean manufacturing derived from the principles of the Toyota Production System. Lean focused on eliminating seven non-productive functions in the production process: transport, inventory, unnecessary motion, waiting, overproduction, over-processing and defects. The aim was to cut costs by shortening production time.

The key concepts for Toyota car manufacturing were defining value from the customer's perspective, eliminating all non-productive functions, involving the workforce in all aspects of the operation, and continued overall development. Producing greater value with the minimum effort was essential to Lean production.

Lean was based on the Just-In-Time-concept, scientific work management, and automation.
JUST-IN-TIME
The basic idea behind the Just-In-Time inventory model was to deliver the required amount of products and raw materials at the required time. This new production-management strategy was intended to improve production efficiency.

STATISTICS
The word “statistics” derives from the Latin term statisticum collegium and the Italian word for statesman, statista. Originally, statistics meant the analysis of data produced by the State, and they were used primarily by public administrations to acquire data. Later on, statistics came to mean all sorts of information-gathering and analysis.

Statistics made it possible to measure observations and to process data gained from measurements. Statistical methods were, for instance, applied to the natural, social and human sciences, and also to official government statistics. Statistics were based on the measurability of things.

MEASUREMENT AND MEASURABILITY
Measuring was necessary to determine the number, magnitude or volume of things. In order to measure something, a unit of measurement was chosen as a reference. By comparing the object with the unit of measure, a precise value could be given to the attribute being measured.

Almost all fields of science measured things. Instruments and meters were used to measure physical phenomena. Even interview studies were used to acquire measurable data.

If there was a need to measure something previously unmeasured, this required a new unit of measure. This process was called operationalization. Operationalization, however, proved to be extremely difficult. For example, in its 300-page report, the Stiglitz Commission, set up to operationalize the concept of the well-being of a population, only managed to draft vague principles for measurement.
PUBLIC MANAGEMENT
To make public administration more effective, management methods were borrowed from the private sector. The theory of public management, developed in the 1970s and 80s, was based on ideas from scientific management, such as maximizing work efficiency, standardizing, measuring and competition. Profit was equivalent to cost-effectiveness and could be calculated, usually in terms of economic gain.

UTILITY
Anything that increased the degree of well-being was seen as producing utility. Well-being was preferably something measurable.

PROFIT
Profit was the difference resulting from subtracting manufacturing costs from sales revenue. The rationality of business operations was measured by the profit they produced.
1960 USA 34 644 000
1960 INDIA 1 429 000
1960 FINLAND 934 000
1970 USA 39 559 000
1970 INDIA 1 635 000
1970 FINLAND 820 000
1980 USA 36 795 000
1980 INDIA 4 225 000
1980 FINLAND 627 000
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2000 INDIA 15 250 000
2000 FINLAND 359 900
2010 USA 35 324 000
2010 INDIA 29 000 000
2010 FINLAND 265 000
2014 USA 31 121 000
2014 INDIA 37 000 000
2014 FINLAND 274 700
View of the Corridor of Historical Perspectives (on the left).
In the Year 1917

There’s still a straw or two of hay left in the roof. That was one good year. The sun is showing through a crack in the wall, everyone made it through the winter. Except for the pig. I close my eyes. I dream of forest and fresh clover.
In the Year 1963

My first born calf lies behind me but even if I try I cannot reach out to lick him. I can hardly turn my head to see him. Whimpering on the grating, struggling to get up. He's breathing, strong little boy. I have to wait. It's always about waiting for something. Food, summer, humans. A calf. I love the way he smells.
In the Year 2011

It's my turn after the small brown one. Having one horn left, she gets to go before me. It's okay, I can do some ruminating meanwhile. The machine is never in a hurry and has never had a bad day. I settle down comfortably. Some tasty fodder appears in front of my nose. The machine fondles my udder, wipes, washes. A good moment. But if you visit it too often, like every time you get up, it refuses to milk you. Not as wayward as a human though.
WHEN HUMAN HISTORY ENDS

If humans disappear tomorrow life will go on. The cattle will break free. Some are not able to escape their stalls and will die in their breasts.

Many wombs are carrying new life. A cow nurses her offspring. Activity goes down as the mother herself is now responsible for the young. One must find food by themselves. The cattle return to the histories. Communities gather by lakes and streaming waters.

Bovines endure cold weather as long as they find shelter and death. Ones that cannot die together die together.
When Human History Ends

If humans disappear tomorrow, life will go on. The cattle who walk around unshackled in their sheds will break free. Some are unable to escape their stalls, and will die of thirst or hunger, or of the pain in their breasts.

Many wombs are carrying new life. A cow nurses her offspring for as long as she sees fit. Calf mortality is reduced, as the mother herself is now responsible for the care and nourishment of her young. Everyone has to find food for themselves. Cattle return to grazing in meadows, fields and forests. Communities gather by lakes and flowing water.

Bovines can endure cold weather, as long as they can find shelter from the wind. Some freeze to death. Those that survive grow a thicker coat for the next winter. Predators pursue them, and yet, when they find bulls, the cows will reproduce. Their physical size and the herd protect them from many a peril.

Nevertheless, in time, the cattle become smaller. Overall health improves as hard surfaces turn to soft soil, and captivity becomes freedom. Unpredictable circumstances consign some to an early grave, but more and more are given a chance to die of old age. Cattle culture flourishes, not only in its native regions, but also in Finland, America, Australia and Siberia. All those parts of the world named by man, to which he once took cattle, and to which the bovine migrants adapted.